

The Milbank Memorial Fund
QUARTERLY

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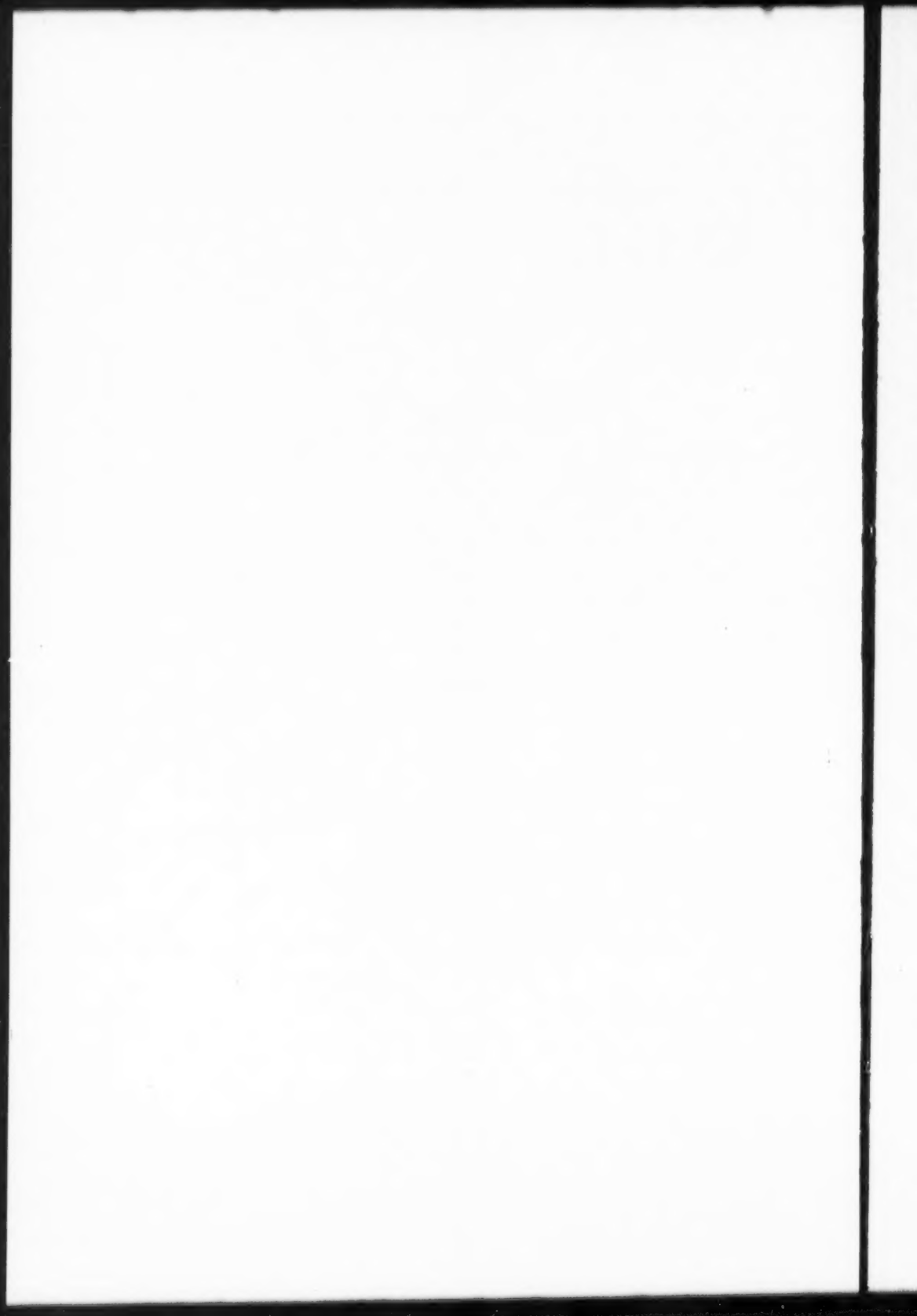
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IN THIS ISSUE

THE subject of discussion at one of the round tables of the 1948 Annual Conference of the Milbank Memorial Fund was "The Family as the Unit of Health." The paper "Preventive Medical Services for the Family" was presented at this round table by Dr. Henry E. Meleney, Professor of Preventive Medicine at New York University College of Medicine.

Dr. Meleney discusses types of preventive medical services for the entire family. These include: premarital advice, prenatal care, preventive measures for children, recommendations for old age, advice in nutrition, recreation, counseling, safety education, and periodic physical examinations. More active participation in these activities by practicing physicians, who can know the family personally is recommended. Dr. Meleney favors organization of physicians in groups "to increase their ability to meet a wider variety of family needs."

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The paper "Characteristics of Stable and Non-Stable Families in the Morbidity Study in the Eastern Health District of Baltimore," by Jean Downes, Selwyn D. Collins, of the United States Public Health Service, and Elizabeth H. Jackson, of the Milbank Memorial Fund, describes certain socio-economic features of the population which was observed for illness for a period of five years.

In this particular morbidity study "moving" families constituted an important part of the total families. Socio-economic differences between the "moving" and "non-moving" families are described and evaluated. This paper provides a background for forthcoming analyses of illness in the Eastern Health District of Baltimore.

The last issue of the *Quarterly* carried three of the papers presented at the Round Table on Problems in the Collection and Comparability of International Statistics, held in connection with the 1948 Annual Conference of the Milbank Memorial Fund. Six additional papers presented at that round table are published in this issue and the total series soon will be available in a single volume constituting part of the proceedings of the Conference.

A landmark in international cooperation toward the end of improving the accuracy and comparability of census data will be afforded in the 1950 Census of the Americas, a project in which twenty-two countries of the Western Hemisphere are cooperating. In the paper "Cultural Differences and Census Concepts" some of the difficulties of the census taker faced with different cultural situations are discussed by Dr. Calvert L. Dedrick, Coordinator, International Statistics, United States Bureau of the Census.

Adopted in 1893 and revised six times at periodic conferences of experts from many countries, the International List of Causes of Death provides one of the best testimonies we have to the possibility of international cooperation in promoting accuracy and comparability of statistics. The latest revision, consummated at an international conference in Paris, April 26-28, 1948, is described in "The Sixth Revision of the International Lists of Diseases and Causes of Death," by Dr. J. T. Marshall, Assistant Dominion Statistician, Dominion Bureau of Statistics, Canada. The latest revision is distinctive in that for the first time it combines classifications by disease and cause of death and hence furnishes a common basis for morbidity and mortality statistics.

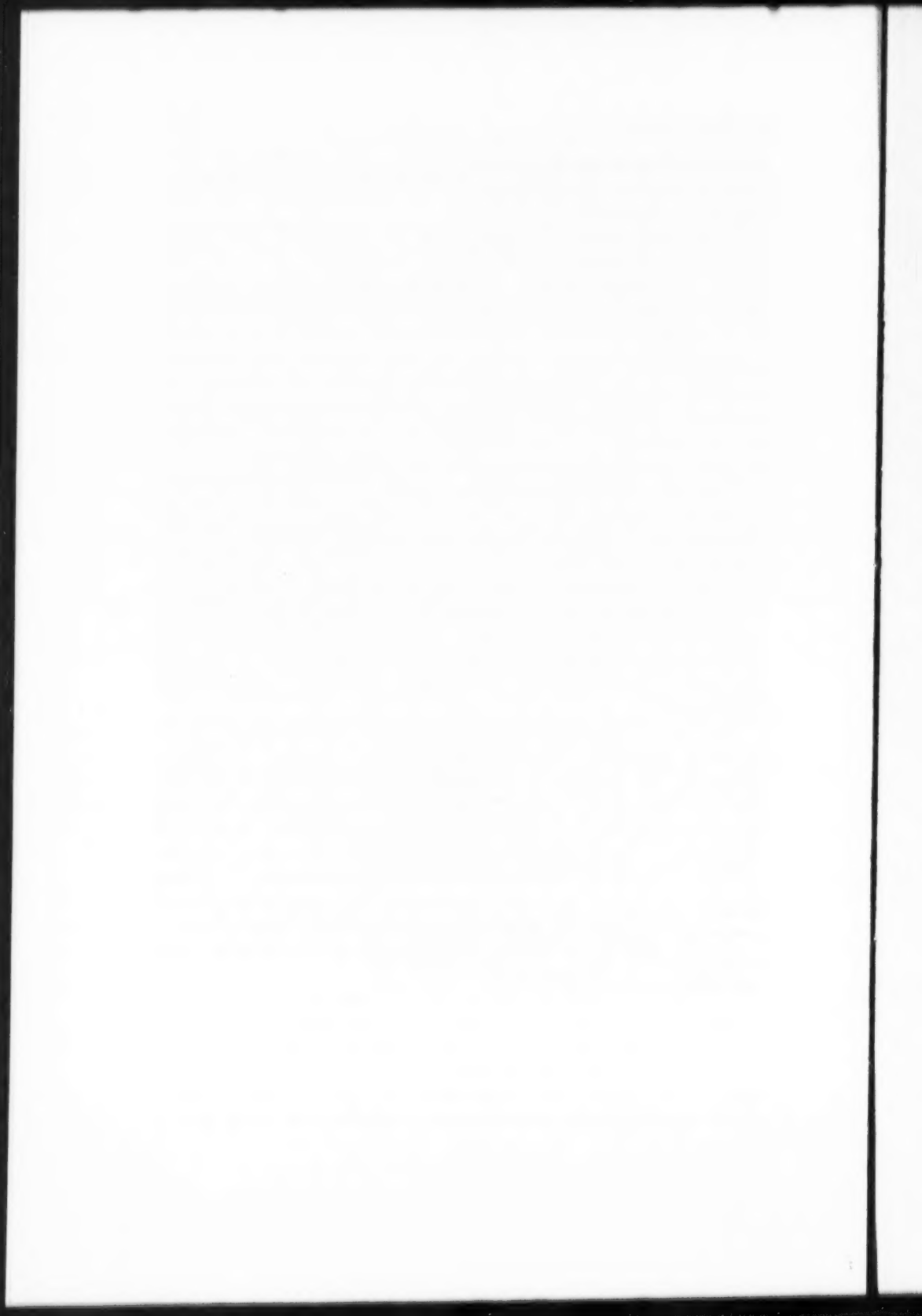
In his paper "Internationally Comparable Statistics of Food and Agriculture," Dr. Conrad Taeuber, Head, Statistics Branch, Food and Agriculture Organization of the United Nations, describes another field in which there is a long history of organized international effort toward the development of internationally comparable statistics. From the time of its founding in 1905 until its absorption into the Food and Agriculture Organization, the Institute of Agriculture has devoted a large share of its efforts to the promotion of uniform standards

and definitions in agricultural statistics. Dr. Taeuber also describes briefly the development of FAO plans for a world-wide Census of Agriculture in 1950.

In the next paper, "Problems in the Collection and Comparability of International Labor Statistics," Dr. Robert Morse Woodbury, Chief Statistician, International Labour Office, reviews briefly the efforts of his organization to standardize "international labor statistics over a period of more than a quarter of a century." Stating that the "primary and essential requirement for international comparability of statistics is agreement upon purposes and concepts" he discusses the status of various types of labor statistics and gives special attention to those concerning employment and unemployment.

Of closely related interest is the paper, "Statistics of the Distribution of Family Incomes by Size," prepared by Dr. J. B. D. Derksen, Chief, Section for National Income Statistics and Research, Statistical Office of the United Nations. Dr. Derksen reviews the applications and concepts of family-income statistics and discusses some of the problems arising in the collection and interpretation of these data. He gives special attention to problems of international comparability, a subject in which the Statistical Commission of the United Nations is particularly interested.

The final paper in the series, "General Assessment of International Statistics and Outlook For The Future," is contributed by Dr. William R. Leonard, Acting Director of the Statistical Office of the United Nations. According to Dr. Leonard, the responsibilities of the "United Nations and the Specialized Agencies . . . for promoting the compilation of comparable statistics . . . are being exercised with diligence and effect." Nevertheless, he holds that the "real hope for comparable international statistics lies in the establishment and improvement of national systems; if these are established and improved, comparability can be achieved."



PREVENTIVE MEDICAL SERVICES FOR THE FAMILY

HENRY E. MELENEY, M.D.¹

IF there is any contrast between Dr. Dublin's subject of "Health Services for the Family" and mine of "Preventive Medical Services for the Family" it is one of definition. "Preventive" is so often used in the purely defensive sense of warding off disease that we may forget its original meaning of "coming before." By this definition Preventive Medicine is the service which comes before disease appears, and it connotes the promotion and maintenance of optimum health.

Our discussion will be directed toward services to the family as a unit. The Peckham Group has called attention to the simple but oft-forgotten fact that individual men and women are not complete biological units, and that only when this union has produced the child is the biological unit complete. This biological unit should also become a functional unit, and that is what the facilities and spirit of the Peckham Health Center aim to develop. In contrast to this, most of our public health programs are aimed at accomplishing certain specific goals with certain groups on a mass scale, and only incidentally related to the family as a unit. This system has been developed to accomplish administrative economy, but it tends to make public health work impersonal and to encourage the attitude that people are specimens of health or disease rather than persons and members of family units. This is the attitude which we deplore in clinical medicine. To overcome it we are teaching our medical students that they should be like the good old family doctor who knew all his patients' personal problems, and that they should practice preventive medicine in its broadest sense as well as high quality curative medicine.

My discussion will deal with the preventive medical services which can be rendered by a physician or group of physicians having supervision of the health of the entire family. It is undoubtedly advantageous for the family to have a single physi-

¹ Hermann M. Biggs Professor of Preventive Medicine, College of Medicine, New York University.

cian who can both guide the family in health practices and treat its members in illness. But this physician should have available laboratory and specialist services such as those provided in a group practice unit.

In discussing these services one must start at some point in the life cycle of the family. It seems most appropriate to start with the premarital period. If the physician has had close enough contact with the family he is likely to know when sons or daughters are contemplating marriage, especially if he has told the family that he would like to give marriage counseling when the time for it arrives. Counseling of premarital partners can usually best be done by seeing them together. The conference should be aimed at an understanding of the physical and psychological aspects of marriage, the requirements for a healthy family, and especially the self-sacrificing adjustments necessary for the continuation of harmony and the development of mature love. A careful history and a thorough physical examination, blood tests for syphilis and the Rh factor and an x-ray of the chest can be supplemental to this conference.

The importance of planning for parenthood is emphasized by our thesis that the family is not a complete biological unit until a child is born. That this event is important in making the family also a complete social unit needs to be emphasized in view of the alarming increase in the proportion of marriages that end in divorce. The possession of children apparently has some deterrent effect upon divorce, but unfortunately too many of the children grow up in an atmosphere of marital strife and become the victims of broken homes. Planning for parenthood should therefore include planning for the permanent adjustment of parents to each other and to their children. This goes back ultimately to the proper selection of a mate, education for which can certainly not be a responsibility of the physician. But he can give information and advice on the physiological and psychological adjustments of marriage in his premarital counseling. He can present the advantages and disadvantages of child-spacing, and, either at this time or after marriage, can

give instruction in the methods of accomplishing this if it is desired. The earlier such instruction is given the more likely it is to be effective in preventing maladjustments, but the practical experience of married couples will often require further counseling at a later time. The family physician should also have available psychiatric, gynecological and genito-urinary specialists who can share with him the responsibility for special problems, such as personality conflicts and sterility, as they arise.

We now move on to the preventive medical services which should be available after conception has occurred. The practice of obstetrics is largely a preventive medical service. Adequate prenatal care includes not only the usual physical examination and interval visits and a blood test for syphilis, but also examinations and instructions for the continued health of the mother and for the production of a normal child if possible. The mother's nutrition must be supervised carefully, any deviation from her normal metabolism must be noted early and adjusted, and special precautionary examinations such as a chest x-ray should be made. Since prematurity is the chief cause of neonatal deaths, instruction should include all known precautionary measures to avoid its occurrence. Preparation by the mother for the arrival of the child, with equipment and instruction in the details of care and feeding, are equally important. Lastly the prospective father must also receive warning as to the physiological and psychological changes of pregnancy, as to patience and equanimity in the waiting room of the hospital, and as to the neglect which he may suffer in the new family program.

Preventive medical services for children have become the chief goal in the practice of pediatrics. The pediatrician in private practice often makes financial arrangements for the supervision of the child in health and sickness on a yearly basis. This should serve as a model for medical service to people throughout life. In addition to periodic check-ups, immunization against smallpox, diphtheria and tetanus must be administered, and reimmunization at appropriate times. Gamma glob-

ulin is an established agent in the prevention or modification of measles. Active immunization against other diseases is also indicated when environmental conditions or residence in endemic or epidemic areas makes exposure a possibility. Tuberculin tests are an essential part of preventive services to children, both to indicate whether infection has occurred and to direct attention to sources of infection. The increasing interest in BCG vaccine may lead before long to its wide use in minimizing the probability of the development of clinical tuberculosis. Dental supervision is also an important part of preventive medical services for children. Orthodontia and periodic check-up for caries should be urgently recommended by the physician, and recent information indicates the wisdom of the local application of sodium fluoride to children's teeth in areas where the water supply is deficient in fluorin.

Nutrition is one of the most important elements in preventive medical services. It begins with birth and extends throughout life. It can follow general principles but must be adapted to each individual, because of differences in metabolism, activity, allergies, availability of foods, religious and family customs, climate and season. In the adolescent period the onset of menstruation in girls has been shown to increase the demand for certain food elements such as protein and calcium, and their deficiency is apparently associated with the development of clinical tuberculosis in infected girls. (1) This also emphasizes the importance of periodic x-ray examination of the lungs at and after puberty.

Recreational counseling may seem to be outside the province of the physician, but in dealing with emotional and behavior problems of both adults and children he can make recommendations which may be of importance. Before the advent of the automobile and the motion picture, recreation in the home, guided by the parents, was more common than it is today. Today parents have difficulty in limiting the leisure activities of their adolescent children to reasonable hours and places. To compete with extremes of unsupervised excitement

and pleasure requires ingenuity and planning by the family, and the physician can cooperate by early guidance and by redirecting unfavorable tendencies. Many behavior problems have a physiological basis, such as reading difficulties in children and alcoholism in adults. Careful observation can frequently discover these conditions early and prevent the development of serious or even tragic complications. Such problems are in the field of mental hygiene, which has become increasingly important in preventive medical service. The beginnings of psychoneuroses lie in physical or mental strains and conflicts, which become exaggerated by repetition and which can most easily be eliminated if detected early. We know less about the fundamental basis of the true psychoses, but it is generally believed that their development can at least be postponed by early recognition of the tendency, and by adjustments of habits and environment.

Vocational counseling is also an activity in which the physician can share an interest with parents and teachers. By his familiarity with the physiological make-up of the adolescent children in the family and by observation of their interests and talents he may help them choose a suitable type of vocation and avoid one which might lead to physical or mental illness.

Little can be accomplished in preventive medical service without the intelligent cooperation of the family. The physician rendering such service is therefore primarily a health educator. Although health education in the mass has been adopted by schools, health departments and industries, individual and family instruction is the most effective approach. Every health examination from the prenatal period to old age should be a session in health education, with simple explanation of the reasons for various tests, favorable comment on normal findings and instruction on how deviations from the normal can be overcome or held in check. Such procedures are paramount in winning the confidence of the individual and family in the skill and personal interest of the physician.

In sex education the physician has a function wider than a

mere statement of the "facts of life" and the dangers of promiscuity and venereal diseases. The Kinsey Report (2) is of value in demonstrating the wide range in sexual behavior from the unrestrained satisfaction of the animal instincts to the natural or self-controlled limitation of sexual activity. But it does not and is not intended to show how sexual behavior may influence physical and mental health or the happiness or fate of the family unit. I believe the physician has a function here in judiciously guiding youths and adults into a point of view which will be conducive to their well-being, without developing repressions which will lead to neurosis. The diversion of some of this animal energy into productive avenues of physical and mental activity is surely beneficial. Indeed the advancement of our civilization toward peace and culture is in proportion to the wise control of our animal instincts.

Safety education is another field to which the physician can contribute. A recent report of the Bureau of Medical Economic Research of the American Medical Association (3) shows that in 1945 accidents were the most important cause of death in the United States from the point of view of working years lost, and the second most important in life years lost. This does not include the tremendous amount of temporary and permanent disability caused by accidents. Physicians must keep this in mind in their instructions to mothers and in attempting to promote and maintain health at all ages. They can be especially helpful in studying the habits and reactions of accident-prone individuals and in suggesting precautions against the repetition of such occurrences.

We have now completed the life cycle of the human family, but it is necessary to follow the life line of the adult members during and after the time when they actually participate in the cycle. Their continued health is important in maintaining the family unit until the children whirl off into their new orbits, and after that in maintaining their own place in the social and economic structure of society. If they have learned the value of the periodic health examination they may seek the continued

guidance of the physician, but usually they will require encouragement to do so. The periodic health examination of adults has never achieved popularity because its benefits have not been generally demonstrable. To be effective it must be thorough, instructive, and performed with interest and enthusiasm. The so-called "negative" findings must be translated into positive findings of health. The inventory must show a large credit to the investor. Age landmarks for the development of diseases of later life must be recognized, and special examinations performed to exclude them or accomplish their early detection. Prevention must be aided by advice as to the adaptation of activities to the declining reserve and resilience of the human machine. Not only the aging adult but also the younger members of the family must become familiar with the physical limitations imposed by time, so that they may cooperate in maintaining the integrity of the family unit.

The attainment of this Utopia in preventive medical services to the family is a problem of considerable magnitude. It involves the shifting of emphasis by the medical profession from the diagnosis and treatment of illness to the diagnosis and treatment of health, and the education of medical students in the importance and opportunities of practicing on well people. Our system of solo practice and the tendency toward narrow specialization is not conducive to advancement along these lines. It is said that even in group practice only a special type of physician is interested in the examination of well people. If the pediatricians can take interest in the normal development of children it would seem that proper orientation and techniques could stimulate the practitioners of other specialties to broaden their interests and enjoy the recognition and encouragement of health as well as the cure of disease.

The demands and overhead cost of solo practice are not conducive to the thoughtful and time-consuming work of providing all these preventive medical services to the family. The assumption by public health agencies of the responsibility for an increasing number of preventive activities, and the assumption

by schools and voluntary health agencies of the responsibility for health education have placed these activities on an impersonal basis which does not fully meet the needs of the family as a unit, or of individual members of the family. I would not decrease these activities by public agencies but I would supplement them by more active participation of practicing physicians, and I would encourage the organization of physicians into groups so as to increase their ability to meet a wider variety of family needs and to facilitate a more leisurely approach to family supervision.

A beginning has been made toward providing these facilities in the establishment of fairly complete family coverage by pre-paid health and medical insurance plans on a group practice basis. For instance, in connection with the Health Insurance Plan of Greater New York, Dr. William A. Davis, at the invitation of Dr. Boudreau of the Milbank Memorial Fund, prepared a brochure entitled "Preventive Medicine in Group Practice," (4) which presents to the group physician the concept of practicing preventive medicine, and outlines methods by which it can be done. Although this brochure has not yet been distributed to the groups participating in HIP some progress has been made by these groups in providing preventive services. In a preliminary analysis prepared for me by Miss Neva Deardorff, Director of Research and Statistics of HIP, 13,000, or 5.8 per cent of the 224,000 services rendered by group physicians during the six-months period beginning November 1, 1947, were classified as preventive. They included health examinations and immunizations. Of the 5.8 per cent about four-fifths were given to persons who were found to be in good health and one-fifth to persons who were found to have a condition which needed attention. This is recognized as only a beginning in furnishing preventive services. Education of subscribers is necessary to encourage them to seek these services for themselves and their families. Miss Deardorff reports that the Painters' Union, during the first three months of participation in HIP, persuaded 20 per cent of its enrolled membership to receive health ex-

aminations. This was half of the total members who were brought under medical observation during that period. Mr. Irving S. Shapiro, Director of Health Education for HIP, reports that eleven of its Medical Groups are now issuing to their subscribers periodic informational bulletins which emphasize prevention and encourage periodic health examinations.

I recognize that such a service as I have outlined is perhaps far in advance of our expectations for the near future. Some of my ideas may be impractical, and I have probably omitted items which might be incorporated in an ideal program. Such a program will require more and better facilities than are now available, a broader education of physicians, the organization of more medical groups and health insurance plans, the accumulation of experience, and above all, wise leadership. When these things have been accomplished a broader, more constructive and I believe a more attractive field will be created for the family physician, and a gap will be filled in the practice of preventive medicine which will be of benefit to the family and to our civilization.

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CHARACTERISTICS OF STABLE AND NON-STABLE FAMILIES IN THE MORBIDITY STUDY IN THE EASTERN HEALTH DISTRICT OF BALTIMORE¹

JEAN DOWNES, SELWYN D. COLLINS, AND
ELIZABETH H. JACKSON

THE morbidity study, conducted from June, 1938 to May, 1943, in the original Eastern Health District of Baltimore, is the first investigation of illness where, due in large part to the method of sampling, families with relatively short periods of observation constitute an important part of the total observed population of families. Preliminary analysis of the morbidity experience of the first year of the study indicated that about one-third of the total families either moved out of or into the study area during that period (1). Movement of families continued throughout the five-year period. This paper presents a study of some of the socio-economic characteristics of the moving and non-moving families—characteristics which form a background for forthcoming analyses of illness.

Reed, *et al.* have presented some general characteristics of the population in the Eastern Health District (Wards 6 and 7) from which the morbidity study population was drawn (2). They found that in 1939, 56 per cent of the white families in the district were home owners. They concluded also that "The population is essentially in the lower middle economic class with a greater proportion of skilled and semi-skilled workers 'relatively' than in the rest of the city."

DATA AND METHOD OF STUDY

The method of sampling in this particular study differed from that of previous periodic surveys of illness. City blocks rather than streets formed the sampling units. Data showing the number of white and colored households in each square block in the

¹ From the Milbank Memorial Fund and the Division of Public Health Methods of the United States Public Health Service.

The Departments of Biostatistics and Epidemiology of the Johns Hopkins School of Hygiene and Public Health and the Baltimore City Health Department also cooperated in the general morbidity study on which this paper is based.

district had been obtained in a census made in 1933 by the Department of Biostatistics of the Johns Hopkins School of Hygiene, with the assistance of the Baltimore City Health Department. Since it was desired to limit the sample to around 1,500 families and yet have it representative of the population from which it was drawn, the census of families by square blocks made it possible to estimate the number of blocks needed to give the desired number of families. Entire city blocks in each of the ten census tracts were selected by picking square blocks roughly according to a checkerboard pattern. An effort was made to select a sufficient number of blocks from each census tract so that the sample drawn from each tract would constitute the same percentage of the total sample population as the white population of that census tract was of the white population of the entire Eastern Health District. A total of thirty-five square blocks was selected in this manner. All of the white families in these blocks, except families which refused to cooperate in giving information, formed the sample population.

The plan of the study was to follow white families that lived in a group of houses in certain blocks rather than to follow a selected group of families. No attempt was made to continue visiting families that moved out of these houses during the period of the study, but the new families that moved into the houses vacated in the sample blocks were included in the study.

It was considered important to obtain illness records from the families at fairly frequent intervals. Past experience had led to the belief that monthly visits would yield more accurate reports of illness than would visits at longer intervals of time and that with this plan fewer of the minor cases of sickness would be missed. Consequently, monthly visiting was initiated in this study.

A preliminary analysis of data of the first year of the study, June, 1938 to May, 1939, indicated that families moving out of or into the sample blocks constituted about 27 per cent of the total families observed two months or longer (1). Further observation indicated that one of the square blocks was atypical

with respect to the family moving rate when compared with the other thirty-four sample blocks. This fact was shown clearly in an analysis of family migration by Rider and Badger (3). At the end of two years, observation of the families in this particular block was discontinued.

Investigation of the chronic diseases was of major interest in the study of illness in the Eastern Health District. An analysis of the morbidity experience during the second year of observation indicated that only 22 per cent of the total families had in them one or more persons with a major chronic illness (4). It was considered desirable to study a larger number of chronic-disease families. Consequently, the original plan of the morbidity study was changed at the end of the third year of observation. Observation was continued in 17 (or one-half) of the 34 blocks for another two years; in the other 17 blocks all families, except those in which there was chronic illness, were no longer observed. A new sample of 34 blocks was selected in the same manner as the first sample and surveyed for illness. The families in this new group of 34 blocks which reported one or more cases of chronic illness were included in the study and observed for two years, or until May, 1943.

This particular analysis of moving and non-moving families is concerned with families observed two months or longer for illness in the 17 blocks which were included in the morbidity study for all five years.

In addition to the record of illness, certain information was obtained for each member of the household. These data were as follows: place and date of birth, employment status, highest education attained, place of employment, and type of work for all employed workers. Weekly or monthly earnings and other money income were inquired about and recorded at each visit. Information was also obtained as to whether the place of residence of the family was owned or rented. The valuation of owned homes and the amount of rent for rented living quarters was a part of the record. The record also included the number of rooms in the house or living quarters.

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In this study the term "family" is synonymous with the usual meaning of the word "household." It includes all persons living in the house, the immediate family, other relatives, and any lodgers. Persons who had their meals in the house and did not sleep there were excluded.

All changes of residence formed a part of the records in the morbidity study. In this analysis a "move" included any move of the family unit into or from one of the houses in the 17 blocks.

INCIDENCE OF MOVING

The average monthly incidence of moving of families in the 17 blocks for each of the five years, June, 1938 to May, 1943, is shown in Table 1. Data for three years for the original sample of 34 blocks studied by Rider and Badger are also included (3). This table includes all families visited to obtain a record of illness. The incidence rates are an expression of the ratio of the entries or departures to the total number of households present during each month. Rider and Badger noted that there was a tendency for migration of families to decrease as time after first observation increased. The same tendency was evident in the 17 blocks and continued into the fifth year of observation. The average monthly entry rate for entering families for the five-

Table 1. Average monthly incidence of moving in a sample of families—Eastern Health District of Baltimore.

STUDY YEAR	AVERAGE MONTHLY RATE PER 100			
	17 Retained Blocks ¹		34 Blocks ²	
	Entry Rate	Departure Rate	Entry Rate	Departure Rate
First	1.75	1.55	1.70	1.72
Second	1.75	1.53	1.70	1.68
Third	1.50	1.42	1.42	1.49
Fourth	1.68	1.35		
Fifth	0.95	1.11		

¹ At the beginning of observation there were 855 families; during the five-year period a total of 828 entered and 755 departed.

² At the beginning of observation there were 1,589 families; during the three-year period a total of 918 entered and 913 departed. Data for the three-year period are from Rider, Rowland V. and Badger, George F.: Family Studies in the Eastern Health District, III. A Consideration of Issues Involved in Determining Migration Rates for Families. *Human Biology*, May, 1943, 15: No. 2, pp. 116-120.

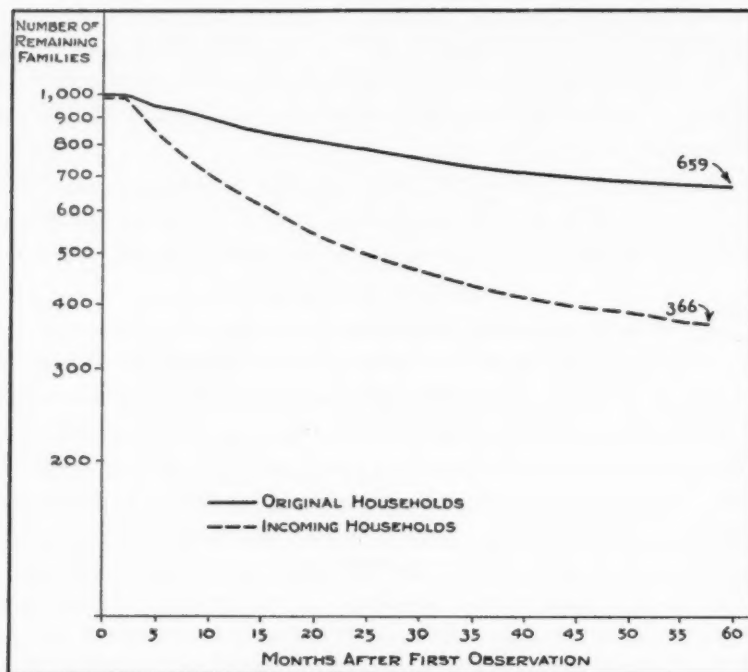


Fig. 1. Number of households remaining in the same house or at the same address in specific months after first observation—Eastern Health District of Baltimore.

year period was 1.52 per 100 families compared with a departure rate of 1.39 per 100. These rates indicate that there was no net loss of families in the 17 blocks during the period under consideration.

It is evident from Table 1 that in the five-year period there was a continual movement of families. The following question may be raised: In a period as long as five years do most of the families observed at the beginning of the period eventually participate in the moving rate or is family moving in this area chiefly confined to a particular group? Rider and Badger investigated this question (3).² Figure 1, following their procedure, also throws considerable light upon the question. The

² Rider and Badger used the method employed in life tables to obtain a non-migration curve. It is similar to the life-table curve of survivorship.

heavy or continuous line shows the rate of loss over a period of five years for the original families or households; 659 out of 1,000 of these families had not moved during that period. On the other hand, the moving out of the incoming households, shown by the broken line, was at a much more rapid rate. About one-third remained in the sample blocks for 4.5 years. The non-migration curve of the incoming families shows a rapid decline during the first twelve months after observation; from that point on the decline is much more gradual. This means that a fairly high proportion of the incoming families constituted a very mobile group in that they moved into and out of the sample blocks within a relatively short period of time. Thirty-three per cent of these families moved out of the sample blocks within twelve months after entry.

SOCIO-ECONOMIC CHARACTERISTICS OF THE FAMILIES

During the five-year period, June, 1938 to May, 1943, 1,270 families in the 17 blocks were observed two months or longer for illness. Slightly over a third of the families, 444, were present in the study in June, 1938, and did not move during the five years. The remaining 826 families moved one or more times while under observation. For purposes of analysis the families were divided into three groups: 1. The 444 families which did not move during the period were considered as a "stable" group. 2. Families which moved only once, either into or out of the sample blocks, during the five-year period were classed as an "intermediate" group. These numbered 448. 3. Families which moved more than once, either into and later out of one of the observed city blocks or vice versa during the five-year period, were classed as a "very mobile" group. These numbered 378.³

It is of interest to learn whether there were important differences among the three classes of families. Data which indicate certain socio-economic characteristics of the family and of its environment are age, education, and occupation of the head of

³ In addition there were thirteen families which moved from one observed block to another observed block during the study. These families have been excluded from the present analysis because they do not fall within the definition of any of the three groups.

household. Home ownership, amount of family income, and amount of living space or housing are also considered important environmental factors of family life.

In periodic surveys, certain socio-economic characteristics of the family may change. For that reason, employment status, occupation of all gainfully employed persons, and amount of family income was asked about at each visit to the family and any changes were recorded. In this analysis, certain of these characteristics of the families observed for five years are expressed in terms of an average experience over that period. In the case of the "moving families," these characteristics are expressed in terms of the experience over one year, the year of first observation. Since moving of families took place in each of the five years, the experience of the total "moving families" actually represents conditions during the five-year period.

Age. The age distribution of the family heads classified according to the moving status of the family is shown in Appendix Table 1. In both groups of moving families the heads of household tended to be younger than those in the non-moving families. The mean age for each of the three groups was as follows:

	<i>Mean</i> (Years)	<i>Standard</i> <i>Error</i>	<i>Standard</i> <i>Deviation</i>
Very Mobile	35	± 0.62	12
Intermediate	39	± 0.63	13
Stable	49	± 0.61	12

The difference⁴ between these means are significant and may

⁴	<i>Mean</i> <i>Age</i>	<i>Difference</i>	<i>Standard</i> <i>Error of</i> <i>Difference</i>
Very Mobile	35.2	4.2	± 0.89
Intermediate	39.4		
Very Mobile	35.2	14.1	± 0.87
Stable	49.3		
Intermediate	39.4	9.9	± 0.87
Stable	49.3		

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not be attributed to chance variation. It may be concluded that within the period studied the younger the family the greater were the probabilities of a change of residence during the period studied.

Size of Family. Since the younger families may be assumed to be going through the early process of growth in the biological sense, it is to be expected that they are smaller in size than families in the older group which have reached a later period of growth. Table 2 shows the mean size of family according to the moving status of the family. The distributions upon which the means are based are shown in Appendix Table 2. The "very mobile" families had the smallest mean size and the "stable" or oldest families had the greatest mean number of persons per family. The differences between the means for the "very mobile" and the "intermediate" compared with the "stable" group are statistically significant.⁵

Place of Birth. Two-thirds of the heads of household in the "stable" families were born in Baltimore, about 24 per cent were

Table 2. Mean size of family by moving status of the family—Eastern Health District of Baltimore.¹

MOVING STATUS	MEAN SIZE	STANDARD ERROR OF MEAN	STANDARD DEVIATION	NUMBER OF FAMILIES
Very Mobile	3.35	± 0.09	1.79	373 ²
Intermediate	3.53	± 0.09	1.86	443 ²
Stable	3.82	± 0.09	1.79	444

¹ Mean size of family is as of first year of observation for "very mobile" and "intermediate" families. It is an average for the five years for the "stable" families.

² Size of family was unknown for five families.

	Mean Size of Family	Difference	Standard Error of Difference
Very Mobile	3.35		
Intermediate	3.53	.18	± 0.13
Very Mobile	3.35		
Stable	3.82	.47	± 0.13
Intermediate	3.53		
Stable	3.82	.29	± 0.13

NATIVITY	MOVING STATUS OF THE FAMILY					
	Very Mobile	Inter-mediate	Stable	Very Mobile	Inter-mediate	Stable
	Per Cent			Number of Families		
TOTAL	100.0	100.0	100.0	378	448	444
Born in Baltimore	55.5	55.6	66.6	210	249	295
Born Elsewhere In U.S.	35.2	27.7	8.6	133	124	38
Born in Foreign Country	9.3	16.7	24.8	35	75	110
Unknown Birthplace						1

Table 3. Distribution of family heads according to nativity and moving status of the family—Eastern Health District of Baltimore.

foreign born, about 9 per cent were born in the United States but in areas outside of Baltimore. The moving families differed from the stable families chiefly in that they had relatively few heads of household who were foreign born. Also, in the moving families, the proportion who had come to Baltimore from other areas of the United States varied from 28 to 35 per cent—three to four times as high a per cent as was noted for the "stable" group of families. These data are shown in Table 3.

Home Ownership and Rental. There was a striking difference among the three groups of families with respect to home ownership (Table 4). About 79 per cent of the families which

Table 4. Distribution of families according to home ownership and moving status of the family—Eastern Health District of Baltimore.¹

CLASSIFICATION	MOVING STATUS			MOVING STATUS		
	Very Mobile	Inter-mediate	Stable	Very Mobile	Inter-mediate	Stable
	Per Cent			Number of Families		
TOTAL	100.0	100.0	100.0	378	448	444
Owners	5.0	25.0	78.8	19	112	349
Renters	95.0	75.0	21.2	359	336	94
Unknown						1

¹ Rent and ownership as of first observation.

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did not move owned their homes compared with only 5 per cent of the "very mobile" group and 25 per cent of the "intermediate" group. Families renting homes in this area evidently had greater freedom of movement from one place to another than did those who owned homes. It is apparent that very few renters failed to move at some time during the five years of observation. Home ownership no doubt contributed to family stability, that is, non-moving.

Table 5 shows the mean amount of rent and the mean value of owned homes for each of the three groups of families. The mean amount of rent showed only slight variation when the three groups are compared; it varied from \$24 per month for the "very mobile" families to a mean monthly rental of \$21 for the "stable" families.

The value of the owned homes in the 17 blocks also showed relatively little variation; the mean values were from \$2,500 to \$3,000.⁶ It may be concluded that the 17 blocks where the

Table 5. Mean amount of rent and mean value of owned homes of families classified according to moving status of the family—Eastern Health District of Baltimore.

MOVING STATUS	MEAN	STANDARD ERROR OF MEAN	STANDARD DEVIATION	NUMBER OF FAMILIES
MONTHLY RENTAL OF RENTED HOMES ¹				
Very Mobile	\$24	± 0.44	8.19	351
Intermediate	23	± 0.46	8.32	328
Stable	21	± 0.87	8.19	89
VALUE OF OWNED HOMES ²				
Very Mobile	\$2,559	± 190	760	17
Intermediate	3,008	± 140	1,384	99
Stable	2,738	± 71	1,278	327

¹ Amount of rental is as of the time of the first observation of the family. Nine families received living quarters in return for services, 2 in the "very mobile" group, 2 in the "intermediate," and 5 in the "stable" group. These families have been excluded.

² Value of the home is as of the time of the first observation of the family.

⁶ Under a system of ground rent, residential houses in the Eastern Health District of Baltimore may be bought separately from the land on which they stand. In cases where this was done, values of the houses noted here do not include the value of the land.

families in this study lived constituted an area with relatively uniform housing, since there was little variation in either rentals or in the value of owned homes.

Employment Status of Heads of Household. Table 6 presents the distribution of the heads of household according to employment status. The proportions employed ranged from 87 per cent in the "very mobile" group to 77 per cent in the "stable" group of families. The "intermediate" and the "stable" families had fairly similar proportions of their household heads

Table 6. Employment status of heads of household classified according to moving status of the family—Eastern Health District of Baltimore.¹

EMPLOYMENT STATUS	MOVING STATUS OF FAMILY		
	Very Mobile	Intermediate	Stable
	PER CENT		
TOTAL	100.0	100.0	100.0
Employed			
Full Time	85.2	81.0	73.4
Part Time	1.9	2.5	3.8
Unemployed			
Seeking Work	5.0	3.6	2.9
Retired	0.8	2.7	3.4
Disabled	1.3	3.3	4.3
Other ²	5.8	6.9	12.2
	NUMBER		
TOTAL	378	448	444
Employed			
Full Time	321	363	326
Part Time	7	11	17
Unemployed			
Seeking Work	19	16	13
Retired	3	12	15
Disabled	5	15	19
Other ²	22	31	54
Unknown	1	0	0

¹ Employment status is as of the first year of observation for the "very mobile" and "intermediate" families. For the "stable" families employment status is the average status over a period of five years.

² This class consists chiefly of unemployed housewives who were heads of household. In the "very mobile" group, 12 per cent of the heads were females; in the "intermediate", 13 per cent; and in the "stable" group 18 per cent.

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classed as retired or disabled; from 6 to 8 per cent. In each of the groups a relatively small proportion were seeking work. The differences among the three groups of families actually are small and are due to the fact that some housewives not gainfully employed were head of the household. In the "very mobile" group, 12 per cent of the heads were females; in the "intermediate" group 13 per cent; and in the "stable" group 18 per cent were females.

Education of Heads of Household. There were interesting differences among the three groups of family heads with respect to educational attainment (Table 7). Slightly more than a third of the heads of both groups of "moving" households had more than a grade school education compared with only 20 per cent of the heads of the "stable" families. These differences are a reflection of an older age group in the "stable" families compared with the "moving" families. Very few of the household heads had college or professional education. Foreign-born heads of household have been excluded from Table 7 because

Table 7. Distribution of native-born heads of household by completed education and classified according to moving status of the family—Eastern Health District of Baltimore.¹

CLASSIFICATION OF EDUCATION	MOVING STATUS OF FAMILY		
	Very Mobile	Intermediate	Stable
TOTAL	100.0	100.0	100.0
None	0.3	1.1	1.6
Grade School	58.7	63.7	77.6
1-6 Grades	21.6	25.4	36.8
7 or 8 Grades	37.1	38.3	40.8
High School ²	35.6	31.4	16.4
1-3 Years	23.2	20.6	12.5
4 Years	12.4	10.8	3.3
Business School	1.6	0.3	1.0
College ²	2.5	2.9	1.3
1-3 Years	1.3		0.7
4 Years			0.3
Professional	1.3	0.6	2.0

¹ Heads of household with unknown educational attainment have been excluded; the proportion of unknown in each group was as follows: very mobile 7.9, intermediate 6.2, and stable 8.7 per cent.

² Total includes unknown years of high school or college.

they were not equally distributed among the three groups of families. Furthermore, it is believed that data on educational attainment of the foreign-born heads may not be strictly comparable with those for native-born heads.

Occupation of Employed Heads of Household. Occupational class is considered as a general indication of socio-economic status. Table 8 shows the distribution of the heads of the family in each of three groups accordingly to Edwards' occupational classification (5). The "stable" families had a relatively high proportion of their heads in the manager-proprietor class compared with either of the moving groups. On the whole, however, the three groups of families were more similar than dissimilar with respect to occupational class. The heads of household were concentrated in the skilled and semi-skilled classes.

Family Income. Table 9 presents the mean annual family income for each group of families. The annual income of the family includes money received from all sources by any member of the family. The mean family income was similar in the

Table 8. Occupational class of heads of the households according to moving status of the family—Eastern Health District of Baltimore.¹

OCCUPATIONAL CLASS ²	MOVING STATUS OF FAMILY		
	Very Mobile	Intermediate	Stable
	PER CENT		
TOTAL	100.0	100.0	100.0
Managers and Proprietors ³	9.3	11.3	19.0
Clerks and Salesman	10.7	11.1	10.8
Skilled Workers	24.2	31.3	31.3
Semi-Skilled Workers	37.9	29.9	24.2
Unskilled Workers	8.2	8.0	5.6
Protective Workers	2.1	3.0	5.6
Service Workers ⁴	7.6	5.4	3.5
Unknown ⁵			

¹ Occupation as of first year of observation for "very mobile" and "intermediate" families. For "stable" families it is the average occupational class over a five-year period.

² Edwards—1940.

³ Includes a few professional.

⁴ Includes two domestic workers, one in the "mobile" and one in the "intermediate" group.

⁵ Those with unknown occupation have been excluded from this table. The proportion of unknown in each group was less than 1 per cent.

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"very mobile" and the "intermediate" groups. The mean annual income of the "stable" families was significantly higher than the mean income of each of the moving groups of families.⁷ The number of employed persons per family may be the factor which has contributed to these differences in mean family income. The "very mobile" group had 1.29 workers per family, the "intermediate" had 1.49, and the "stable" group had 1.73 per family. The distribution of the families by income group is shown in Appendix Table 3.

Crowding. Each family was given a crowding rating; that is, each was graded as to the number of rooms in relation to the number, age, and sex constitution of the family or household members. There were four categories: (1) more than adequate; (2) adequate; (3) unsatisfactory; and (4) very unsatisfactory. The description of these categories is as follows:

1. More than adequate: More than one room for sleeping per person or per married couple plus two additional rooms (for living room and kitchen).

Table 9. Mean family income according to moving status of the family—Eastern Health District of Baltimore.^{1, 2}

MOVING STATUS	MEAN INCOME	STANDARD ERROR OF MEAN	STANDARD DEVIATION	NUMBER OF FAMILIES
Very Mobile	\$1,724	± 49.38	± 865	308
Intermediate	1,754	± 50.94	± 967	362
Stable	1,913	± 52.50	± 1,007	369

¹ For the "very mobile" and "intermediate" groups, income is for the date first observed; for the "stable" group, it is for the third study year. Twenty-five families in the "stable" group having unknown income during the third year of observation but known income in another year were classed according to the income known for the study year nearest to the third year.

² Families which received relief or public assistance have been excluded.

	Means	Difference	Standard Error of Difference
Very Mobile	\$1,724		
Stable	\$1,913	\$189	\$73.03
Intermediate	\$1,754		
Stable	\$1,913	\$159	\$73.15

2. Adequate: One room for sleeping per person or for each two persons of suitable age and sex plus two additional rooms (for living room and kitchen).

3. Unsatisfactory: One room for sleeping for each two persons of suitable age and sex, plus one additional room for kitchen.

4. Very unsatisfactory: Less than one room for sleeping for each two persons of suitable age and sex, plus additional room for kitchen.

In Appendix 4 there is a further description of what is meant by suitable age and sex groups for room sharing. The crowding rating

is an attempt to arrive at a more sensitive index than is afforded by grades based on number of persons per room.

Figure 2 shows the distribution of each group of families according to their crowding rating. It should be recalled that the "very mobile" families had the smallest mean size (Table 2), yet about 56 per cent of these families were graded as having an unsatisfactory amount of living space. In comparison, the "stable" families, having the largest mean size of family, had an unsatisfactory rating for only 21 per cent of their total.

In Table 10 the families in each group are classified according to size and crowding rating. It is clearly apparent that the "stable" families, no matter what the size of family, had higher proportions which had "more than adequate" living space than did either of the other two groups of families. The "very mo-

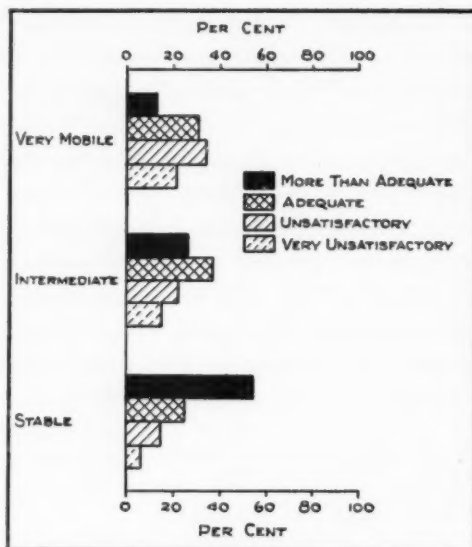


Fig. 2. Distribution of families by crowding rating—Eastern Health District of Baltimore.

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bile" families showed the greatest degree of crowding in the small, medium, and large families compared with the "intermediate" and "stable" families.

Unsatisfactory living space in relation to size of family may have been an important reason for moving. Rider and Badger (3) obtained information as to the destination of the families which moved during the period June, 1938 to May, 1941. Destination was limited to whether the family moved to another address in the Eastern Health District (Wards 6 and 7), to some other part of Baltimore, or moved away from Baltimore. They found that about 50 per cent of the moving families moved to another address in the Eastern Health District, that is, they moved within a relatively small area. In view of the degree of crowding in the moving families, it seems reasonable to suppose that unsatisfactory living quarters had some influence upon family moving, especially since so many did not leave the Eastern Health District.

CERTAIN CHARACTERISTICS OF ALL FAMILY MEMBERS

The three groups of families included a total of 5,047 persons: 1,310 were in the "very mobile" group; 1,743 in the "intermediate" group; and 1,994 in the "stable" group. In each group

Table 10. Distribution of families by crowding rating and family size and according to moving status of the family—Eastern Health District of Baltimore.¹

CROWDING RATING	MOVING STATUS								
	Very Mobile			Intermediate			Stable		
	Size of Family			Size of Family			Size of Family		
	1-2	3-4	5+	1-2	3-4	5+	1-2	3-4	5+
PER CENT									
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
More Than Adequate	10.4	19.3	7.7	26.5	36.8	7.8	75.0	67.0	16.8
Adequate	61.1	5.3	24.4	51.6	20.5	43.7	15.5	13.2	51.1
Unsatisfactory	24.3	50.0	21.8	16.1	28.1	19.4	6.9	15.7	19.9
Very Unsatisfactory	4.2	25.4	46.1	5.8	14.6	29.1	2.6	4.1	12.2
Number of Families	144	150	78	155	185	103	116	197	131

¹ For the "very mobile" and "intermediate" groups, crowding rating and size of the family refer to the time of first observation; for the "stable" group they are an average for the five-year period.

the ratio of males to one hundred females was as follows: "very mobile" 98; "intermediate" 93; and "stable" 105.

Age. Table 11 shows the age distribution of the total males and females in each group of families. The "very mobile" and "intermediate" families differed from the "stable" families in that they had higher proportions of young children in them. The "stable" families had a higher proportion of middle and old-age persons, aged 45 and over, than was true of either of the moving groups. These populations thus were typical of young families, intermediate families, and older families in the biological sense.

Males and females in the three groups of families (Table 12) were classed according to the nature of their major activity, such as gainfully employed and not gainfully employed. The unemployed were classed as seeking work, attending school, disabled, or "other" which includes chiefly preschool children and, among females, also includes housewives.

Table 11. Age distribution of males and females according to moving status of the family—Eastern Health District of Baltimore. ^{1, 2}

AGE GROUP	MOVING STATUS OF THE FAMILY					
	Very Mobile		Intermediate		Stable	
	Males	Females	Males	Females	Males	Females
	PER CENT					
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Under 1 Year	7.3	8.3	6.5	5.6	4.1	4.9
1-4	11.8	9.2	8.3	9.8	5.5	4.2
5-9	7.3	10.0	8.8	7.4	6.4	4.7
10-14	5.1	6.8	6.0	7.0	8.5	8.7
15-19	7.9	9.5	7.4	10.0	10.0	9.7
20-24	16.6	18.7	10.7	15.5	10.3	8.9
25-34	22.1	18.5	23.5	19.7	16.6	15.1
35-44	11.1	9.0	12.7	10.4	13.4	13.8
45-54	6.5	5.3	8.7	6.0	12.6	13.4
55-64	2.8	3.2	4.5	4.4	8.1	8.0
65 & Over	1.5	1.5	2.9	4.2	4.5	8.6
Number of Persons	646	663	841	900	1,015	969

¹ Age of all persons is as of the mid-point, or January 1st, of the study year of first observation.

² Persons who have been excluded because age was unknown were as follows: "Very Mobile", one male; "Intermediate", one male and one female; "Stable", six males and four females.

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Approximately 60 per cent of the males in each group were employed. The males in the three groups showed considerable similarity with respect to all classes of employment status except that in the "stable" families a higher proportion were in school and a lower proportion were classed as "other" than was true of the moving families. Twenty-six per cent of the females in the "stable" families were gainfully employed compared with 16 per cent in the "very mobile" group.

It will be recalled that the number of employed persons per family was lowest in the "very mobile" group, 1.29; highest in

Table 12. Percentage distribution of males and females according to employment status and by moving status of the family—Eastern Health District of Baltimore.

EMPLOYMENT STATUS	MOVING STATUS OF THE FAMILY		
	Very Mobile	Intermediate	Stable
	MALES		
TOTAL	100.0	100.0	100.0
Employed			
Full Time	59.1	54.6	61.6
Part Time	1.2	2.4	2.0
Unemployed			
Seeking Work	3.6	5.5	4.3
Disabled	1.4	2.2	2.1
School	12.4	15.1	19.0
Other ¹	22.3	20.2	11.0
Number of Persons	645	841	862
	FEMALES		
	Very Mobile	Intermediate	Stable
	FEMALES		
TOTAL	100.0	100.0	100.0
Employed			
Full Time	15.6	21.1	23.6
Part Time	0.9	1.0	2.3
Unemployed			
Seeking Work	3.5	3.0	2.2
Disabled	0.4	2.3	1.9
School	14.2	14.0	16.0
Other ¹	65.4	58.6	54.0
Number of Persons	662	897	864

¹ Among males this class consists chiefly of preschool-age children; among females it consists chiefly of preschool-age children and housewives.

the "stable" group, 1.73; and in the "intermediate" group with 1.49 employed person per family fell between the two extremes.

Occupation. Table 13 shows the usual differences in the type of occupation of employed males compared with females. In each group of families gainfully employed females were concentrated in three occupational classes: clerks and sales persons, semi-skilled workers, and service workers. The males were classified chiefly as skilled or semi-skilled workers.

From this analysis of socio-economic characteristics of the families observed in the 17 blocks and classed according to moving and non-moving, several points of interest have been noted. It had already been shown by Reed, *et al.* (2) that the Eastern Health District of Baltimore was populated chiefly by lower middle-class families; employed white persons mainly were skilled and semi-skilled workers and housing was considered fairly uniform. These same characteristics were found true

Table 13. Distribution of all employed persons according to occupational class and moving status of the family—Eastern Health District of Baltimore.¹

OCCUPATIONAL CLASS ²	MOVING STATUS					
	Very Mobile		Intermediate		Stable	
	Males	Females	Males	Females	Males	Females
	PER CENT					
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Managers and Proprietors ³	8.5	7.3	9.2	8.1	13.9	5.9
Clerical and Salesmen	12.2	21.1	12.9	21.8	15.3	41.4
Skilled Workers	24.2	4.8	30.1	4.1	27.9	3.2
Semi-Skilled Workers	38.8	39.4	30.7	43.1	29.8	33.3
Unskilled Workers	8.3	0.9	9.0	0.0	6.6	0.4
Protective Workers	1.9	0.0	3.0	0.0	4.1	0.0
Service Workers ⁴	6.1	26.7	5.1	22.9	2.4	15.8
Number of Persons ⁵	376	109	466	197	541	222

¹ For the "very mobile" and "intermediate" groups, occupation refers to that of the date first observed; for the "stable" group, it is an average of the five years.

² Edwards—1940.

³ Includes a few professional.

⁴ Includes 25 domestic workers; 3 females in the "very mobile" group, 1 male and 9 females in the "intermediate" group, and 12 females in the "stable" group.

⁵ Occupational class was unknown for "very mobile," 3 males; "intermediate," 4 males; and "stable," 4 males. A very small number employed on work relief have been excluded.

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of the families in the sample 17 blocks. There the moving groups were composed mainly of families living in rented homes; they were generally smaller in size, had fewer wage-earners per family, and were living under more crowded conditions than were the "stable" families.

SUMMARY

A study of some of the socio-economic characteristics of the families in the morbidity study in the original Eastern Health District (Wards 6 and 7) of Baltimore has been presented. The socio-economic characteristics describe the observed population and afford a background for forthcoming analyses of illness.

During the five-year period June, 1938 to May, 1943, 1,270 families in 17 of the sample blocks were observed two months or longer for illness. Eight hundred and twenty-six of these families moved one or more times and 444 did not move during the five years.

The moving families differed from those that did not move as follows: Among the moving families the head of household tended to be younger, the size of family was generally smaller, a lower proportion of household heads were foreign born, relatively few were home owners, and the educational attainment was somewhat higher than among families that did not move.

There were no marked differences among the families with respect to mean rentals and valuation of owned homes. Employment status and occupation of heads of household also showed little variation among the groups studied.

The mean family income of the families that did not move was significantly higher than the mean income of the moving families. The families that did not move also had more wage-earners per family than did the moving families.

The families were rated as to the degree of crowding in their homes; that is, each was graded as to the number of rooms in relation to the number, age, and sex constitution of the family or household members. No matter what the size of family, the families that did not move had higher proportions which

had "more than adequate" living space than did the moving families. The families which moved most frequently showed the greatest degree of crowding.

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Appendix Table 1. Age distribution of family heads according to moving status of the family—Eastern Health District of Baltimore.¹

AGE GROUP	MOVING STATUS OF THE FAMILY					
	Very Mobile	Inter-mediate	Stable	Very Mobile	Inter-mediate	Stable
	Per Cent			Number of Families		
TOTAL	100.0	100.0	100.0	378	448	444
15-19	0.5	1.1	0.0	2	5	0
20-24	23.4	10.7	0.9	88	48	4
25-34	35.8	35.3	14.4	135	158	64
35-44	20.7	23.0	23.4	78	103	104
45-54	11.1	14.5	27.1	42	65	120
55-64	6.4	9.8	20.7	24	44	92
65+	2.1	5.6	13.5	8	25	60
Unknown				1		

¹ Age of all persons is as of the midpoint, or January 1, of the study year of first observation.

Appendix Table 2. Distribution of families according to size and moving status of the family—Eastern Health District of Baltimore.¹

FAMILY SIZE	MOVING STATUS			MOVING STATUS		
	Very Mobile	Inter-mediate	Stable	Very Mobile	Inter-mediate	Stable
	Per Cent			Number of Families		
TOTAL	100.0	100.0	100.0	378	448	444
1	5.6	5.0	4.0	21	22	18
2	33.0	30.0	22.1	123	133	98
3	27.9	24.8	23.2	104	110	103
4	12.3	16.9	21.2	46	75	94
5	9.9	10.8	12.8	37	48	57
6	5.1	5.0	8.6	19	22	38
7	2.7	2.7	4.3	10	12	19
8	1.6	2.3	1.8	6	10	8
9	0.8	1.4	1.1	3	6	5
10	0.5	0.5	0.7	2	2	3
11	0.3	0.2	0.2	1	1	1
12	0.3	0.4		1	2	
Unknown				5	5	

¹ Data for the "very mobile" and "intermediate" groups of families refer to size of family as of the date of first observation; those for the "stable" group represent an average of the five-year period.

Appendix Table 3. Annual income of families classified according to moving status of the family—Eastern Health District of Baltimore.^{1, 2}

INCOME GROUP	MOVING STATUS					
	Very Mobile	Inter-mediate	Stable	Very Mobile	Inter-mediate	Stable
	Per Cent			Number		
TOTAL	100.0	100.0	100.0	378	448	444
Relief	7.5	5.5	3.2	25	21	12
\$0.00- 500	2.7	2.9	3.9	9	11	15
500- 999	12.9	14.9	12.1	43	57	46
1,000-1,499	26.5	26.6	20.5	88	102	78
1,500-1,999	25.2	22.4	21.5	84	86	82
2,000-2,499	10.2	12.3	16.8	34	47	64
2,500-2,999	7.5	6.5	10.2	25	25	39
3,000-3,999	6.0	5.5	8.4	20	21	32
4,000-4,999	0.9	2.1	2.1	3	8	8
5,000 & Over	0.6	1.3	1.3	2	5	5
And Also:						
Unknown				45	65	63

¹ For the "mobile" and "intermediate" groups, income refers to the date first observed; in the "stable" group, income is for the third year of observation. Twenty-five families in the "stable" group having unknown income during the third year of observation had a known income in another year; the known income for the year of observation, nearest to the third year was taken for these families.

² The per cents in this table are based on total families with known income. The proportion of unknown in each group was as follows: "very mobile" 11.9, "intermediate" 14.5, and "stable" 14.2 per cent.

APPENDIX 4

Instructions (crowding rating) given for determining suitable age and sex for sharing a sleeping room were as follows:

1. *Sex*: One sleeping room for two persons of opposite sex is considered suitable if the two persons are married or if both are under 6 years of age.

2. *Age*: (a) A separate sleeping room is to be allowed for infants under 2 years of age, except where there is more than one infant under 2.

(b) Two persons under 20 years of age who are of the same sex may share the same sleeping room if there is less than six years difference in their ages.

(c) Two adults who are 20 years of age or older and of the same sex may share the same sleeping room if there is less than fifteen years difference in their ages.

(d) An adult who is 20 to 25 years of age may share a room with a younger person of the same sex if there is less than six years difference in their ages.

3. *Lodgers*: A separate room is to be allowed for each lodger of different sex, unless a married couple. Related lodgers will be treated in the same way as family members, except that no allowance will be made for a separate living room and kitchen for lodgers.

CULTURAL DIFFERENCES AND CENSUS CONCEPTS

CALVERT L. DEDRICK¹

ONE of the questions most frequently asked about the 1950 Census of the Americas is, "Will all the countries use the same population schedule, or questions?" When this is answered with a categorical "No," the next question usually is, "How, then, are you going to get international comparability of the censuses of the twenty-two American nations?"

For many people, including some statisticians, the essential element in attaining comparable results in a statistical inquiry is to ask exactly the same questions in exactly the same way of all the respondents and then tabulate the answers in accordance with a uniform mechanical pattern. Differences between the various sub-groups of the population universe are then measurable with a high degree of accuracy. How often this accepted statistical procedure fails to yield the desired results when used in measuring the relatively homogeneous population of the United States, we do not know. We do know that it is *not* a satisfactory technique when applied to widely divergent culture patterns such as those of the Western Hemisphere.

The Committee on the 1950 Census of the Americas has never concerned itself very much with census *questions*. Its emphasis has been on census *topics*, or items, or for which as nearly comparable data as possible are desired for all countries. The Population Commission of the United Nations has also placed its stress on census topics or items rather than questions. Indeed, the close working relations between the Committee (often referred to as COTA) and the Population Commission and staff of UN have resulted, for all practical purposes, in a single international list for population census purposes. The definitions of these topics are in most instances very general, capable of adaptation to various culture patterns, and related to social and economic problems as widespread as mankind—

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those related to sex, age, marital status, place of birth, citizenship, language, literacy, occupation, etc.

With agreement reached on the most necessary general topics to be covered by population censuses, *i.e.*, a minimum international list, a great step toward international comparability of censuses has been taken. But, this is only a first step, and to rest here with the hope that each country will be able to take a census conforming to these international standards is sheer wishful thinking. Quite naturally we think first of the administrative and physical difficulties; for example, the lack of census offices with trained personnel, the inadequate financial support of statistics, the lack of maps, communication and transportation facilities, etc. These are serious indeed in many countries of the Western Hemisphere, but they are problems to which many different available skills and interests can be applied and are being applied in preparation for 1950.

The conversion of an international minimum list of census topics into a practical census schedule, with instructions, procedures, and tables for each country presents problems which have not been solved and on which research is now just beginning. I consider this one of the most important fields for research by demographers and statisticians at the present time. Until we know how to draft census schedule questions and instructions suitable for each cultural group, *i.e.*, meaningful in the language, concepts, values, and experiences of different peoples, we cannot hope to have comparable international population statistics, or even know when they are not comparable.

The cultural pattern of the Western Hemisphere can be divided initially into two major areas: the two countries north of the Rio Grande which are basically Northwestern European and dominantly English; and the twenty countries south of the Rio Grande which are basically Southwestern European, and dominantly Spanish.

Through centuries of intimate contact the French and English elements of Canada have come to have an essentially common culture, and it probably is not significantly different from

that in the United States for census purposes. This does not mean that, in this English-speaking area, there are no areas which should be studied for the application of special census techniques.

Latin America presents a greater number of cultural problems to the statistician, both because of the diversity of cultures within the area, and because of the difficulties of securing exact conceptual equivalents among the official languages—Spanish, Portuguese, French, and English. As to language, Guatemala, with a population of about 3,000,000, has six Indian dialects in addition to the official language, Spanish. Other countries with significant population groups which do not speak the national language, and in many instances differ culturally from the main population of the country are Mexico, El Salvador, Panama, Ecuador, Peru, Bolivia, Paraguay, Brazil, and Venezuela. In each of these countries, and to a lesser extent in some others, it will be necessary to frame the population census instructions in such a way that the agreed-to topics will have the desired meaning to the respondents in their own language.

Recently our Committee prepared a questionnaire on the basic census topics. We used Latin American technicians who are studying in the United States to translate the original English version to Spanish. To do so required the invention of new terminology in Spanish and Portuguese, terminology which, when tested on other Spanish-speaking trainees, was not readily understood. For example, a topic on the international list for data collection by all countries is the number of "households." In neither Spanish or Portuguese could a term be found which had the exact equivalent of the concept "household." The invented term is "census family" (in Spanish, "familia censal.") Now there are statistics on "families" and "census families" both included in some of the plans. On the other hand the Spanish word "vivienda" is superior in concept for census purposes to our closest equivalent "dwelling unit."

When that which is approved by law or the Church differs materially from the customs of the people there are other types

of statistical classification difficulties. For example, what is called "common law" marriage in the United States is very widespread in certain Latin American countries. The statistics of a number of countries, however, do not recognize it at all. Thus thousands of women who, for statistical as well as legal purposes, are "single" are mothers and grandmothers. Under these cultural circumstances the adoption of the United Nations definition of marriage as including all forms of marital unions which are socially acceptable is difficult, if not impossible for the census technicians. Since only a civil ceremony has full legal standing in Mexico, but many people prefer a religious ceremony, their marital classification reports separately (1) civil marriage only, (2) religious marriage only, (3) both civil and religious marriage, (4) living together, not married, (5) widowed, (6) divorced, and (7) single. Some countries hesitate to recognize the "living together, not married" as a standard census category. The effect of this on certain types of fertility analysis is obvious.

Cultural differences in the organization of education and the attitude of the population toward education will materially affect international comparability of census data on this subject. There are wide differences between different Latin American countries and even within some countries as to the number of years and level of schooling in "primary," "secondary," and "college." Nor can these differences be avoided by using the number of years of schooling as a census classification because of the wide variation in what constitutes a school year. The statistics on education from the 1950 Census of the Americas will require very careful handling for international comparability.

Probably no aspect of a census of population is more useful in measuring the economic potential of a people than data on the "economically active population," *i.e.*, the "gainful workers," or the "labor force." Relatively few countries of Latin America have attempted seriously to develop more than simple occupation data in their past censuses. How successful will be

the application of modern census concepts and techniques in this field is not known. It seems reasonable to assume that the larger cities of Latin America such as Rio de Janeiro, Buenos Aires, Santiago, Mexico City, Havana, etc., are similar enough to corresponding cities in the United States and Europe to permit the use of the same census procedures. Here either the gainful worker or the labor force approach would find the industrialized economy which they are best designed to measure.

A rural Indian village in the Andes, on the other hand, presents a different problem of economic activity. It would be almost ridiculous for an enumerator to ask an illiterate family which persons were usually gainfully employed, or even which ones worked. Every child almost as soon as he can walk becomes a "worker." His education consists of doing things with his mother, father, sisters, and brothers. He has no "job," or even a concept of one; he is part of the family, and the family works together for their own support. The concepts of being an employer or employee, of having a job, of being employed or unemployed are most applicable to highly industrialized countries. Some of these probably disappear entirely in a primitive, self-sufficient agricultural economy. We are not sure just what approach to such a culture will yield the best data for national and international purposes.

One of the important topics on the international minimum list concerns agricultural population. For many purposes it is desirable to have a measure of the number of persons "dependent on agriculture," however that term may be defined. Again the problem of cultural differences complicates our techniques. In many parts of Latin America there is an almost complete admixture of home industry with agriculture. This occurs not only among the native Indian population but throughout the entire lower-income group of the population except in the larger cities. Cloth weaving, shoe-making, wood carving, carpentry, preparation of food for sale, and many other activities utilize the time of all workers in the family when they are not directly needed for farming. At certain times everyone works in agricul-

ture; in other seasons, scarcely anyone. The practice of diversified home industries and sales or exchanges in the village market place of non-agricultural as well as agricultural goods by the same family makes the classification of such families very difficult.

The above examples of the difficulties of the census taker faced with different cultural situations are but a few of many which must be solved in the 1950 Census of the Americas. Especially when we talk about securing internationally comparable data for countries with widely diverse cultures and levels of industrial development, we are apt to be overoptimistic. Much research in which the statistician joins forces with the sociologist and the anthropologist must be completed before we shall know just how true comparability—as distinguished from apparent or “census label” comparability—can be attained.

Some research of this type is now under way in Latin America. Several countries are planning to take trial censuses, using the topics of international lists and the best definitions now available in their language and adapted to their culture pattern. Technicians from the United States are assisting in these trial censuses. We hope that the regional census training institutes which are planned for the next year will bring technicians from all the countries together to analyze the experience gained from the trial censuses under different conditions. But, only after the 1950 censuses are all taken and analyzed shall we be in a position to say whether census techniques have been able adequately to measure radically different cultural areas.

THE SIXTH REVISION OF THE INTERNATIONAL LISTS OF DISEASES AND CAUSES OF DEATH

J. T. MARSHALL¹

WHAT distinguished the Sixth Decennial Revision of the International Lists of Diseases and Causes of Death from its predecessors is the fact that it meant, by combining diseases and causes of death into one list, a revolutionary change. Nevertheless, it met with the unanimous approval of the delegates from all twenty-nine countries represented at the International Conference in Paris, April 26-30, 1948. It is noteworthy that the unanimous acceptance of the new List was accomplished before the first day of the Conference came to an end. This fact in itself should recommend the new International Statistical Classification of Diseases, Injuries, and Causes of Death, as it emerged from the Sixth Revision very strongly, not only to the Governments represented in Paris, but also to those which did not participate.

To all those who have been connected with the work on the List, the result is very gratifying indeed, not only because of the technical achievement, but also because of the spirit of cooperation displayed by all participants and the willingness to give up what we had developed nationally through years of arduous work for what was recognized as the common interest and good.

Two factors were probably instrumental in facilitating agreement on the new combined List. The first is that the need for a morbidity code has long been generally recognized. The second is that a classification of diseases could be worked out that fitted into the general framework of the existing International List of Causes of Death.

A brief review of the events leading to the Sixth Revision will illustrate my point. (Some of the material may be found in the Introduction to Part I of the new List.) An International List of Diseases was adopted as early as 1900 by the First Revision Conference. The subsequent decennial conferences also pro-

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duced such lists, based on the classification of causes of death. As they presented only limited expansion of this latter list, however, these classifications of diseases failed to receive general acceptance, and the various countries developed their own list or lists for their own requirements. The Fifth International Conference, held in Paris in October 1938, adopted the following resolution:

International Lists of Diseases

In view of the importance of the compilation of the international lists of diseases corresponding to the international lists of causes of death,

The Conference recommends that the Joint Committee appointed by the International Institute of Statistics and the Health Organization of the League of Nations undertake, as in 1929, the preparation of international lists of diseases, in conjunction with experts and representatives of the organizations specially concerned.

Pending the compilation of international lists of diseases, the Conference recommends that the various National Lists in use should, as far as possible, be brought into line with the detailed International List of Causes of Death. . . .

The same Conference also recommended that the United States Government continue its studies of the statistical treatment of joint causes of death.

When, complying with this resolution, the United States Committee on Joint Causes of Death, which included British and Canadian representatives, began its work in 1945, it soon recognized that a classification of sickness and injury, as recommended in the above resolution, should be closely linked with the existing International Lists of Causes of Death. The question arose whether there should be two separate lists—one for causes of death, and the other for causes of disease—or whether these two lists should or could be combined into one. If it was decided to have only one list, it was desirable, of course, not to break all continuity with the old International Lists of Causes of Death.

A classification of diseases and injuries designed for the dual classification of causes of illness and death must necessarily differ in content from that of the previous International Lists of Causes of Death. But experience with nationally developed morbidity classifications proved that the general structure of the International Lists of Causes of Death was a useful frame around which a morbidity classification could be evolved. The basic structure of the International Lists, furthermore, has stood the test of well over a half century of use in numerous countries throughout the world.

The very fact that the general arrangement has not been changed substantially in that time suggests that it would be difficult to improve upon it as a working basis for morbidity statistics as well.

This consideration led the International Conference in 1938 to recommend that existing national morbidity lists be brought in line with the International Lists of Causes of Death. The United States Committee on Joint Causes of Death has also been aware of the close relation which exists between a classification for morbidity and one for causes of death. The study of the joint cause problem brought out more clearly the fact that Causes of Death did not refer merely to the terminal causes, but rather to the morbid conditions initiating the train of events ultimately resulting in death. The Committee, therefore, came to the conclusion that, in order to make full use of both morbidity and mortality statistics, the classification of diseases for both purposes should be not only comparable but, if possible, should be combined into a single list.

Furthermore, the number of statistical organizations which are producing medical records involving both sickness and death is growing, and such records are gaining more and more importance as the interest in morbidity statistics increases. Even where only morbidity statistics are compiled, fatal as well as non-fatal cases must be coded. A single list would not only facilitate coding operations, but it would for the first time furnish a common basis for comparison between morbidity and

mortality statistics, which becomes more and more indispensable for an effective evaluation of the health situation.

As the outcome of this thinking, the United States Committee had, by February 1946, prepared a "Proposed Statistical Classification of Diseases, Injuries and Causes of Death," which since has been subjected to various trials and reviews by a number of agencies in various countries, and which formed the basis for the now adopted International Statistical Classification of Diseases, Injuries, and Causes of Death.

Without going any further into the history of events leading to the final adoption of the list, consideration should be given to some of the problems connected with drawing it up, and some of its characteristics.

As a cause-of-death classification, the new list had to provide for comparability of certain important categories with the corresponding ones of the Fifth Revision of the International List. This did not necessarily mean that strict comparability had to be carried down to the last subdivision. It has to be borne in mind that even the best statistics of morbidity or causes of death inevitably involve a certain amount of subjectivity due not only to the innate amount of individual opinion in every diagnosis, but also due to the difference in the standards of education and outlook of doctors in different parts of the world, and to the changes brought about in medical science over a long period of time. In order to be exact, therefore, we should say that what we are comparing is not, as we would like it to be, the frequency of a particular disease now or, say, twenty years ago, but the frequency of a particular term used in a diagnosis. This has to be considered in analysing the statistics, and to a certain degree applies to all statistical tabulations.

That changes in the international classification will become necessary from time to time has always been recognized, and for that reason the decennial revisions were instituted as early as 1899. Dr. Bertillon laid great emphasis on the desirability of continuity in the list, but he did not insist on its being rigidly preserved. All he wished for was, as he explained at the 1900

Conference, that one might hope the list would last a long time and that it would not be necessary to revise it too drastically in the future. He was right because, as mentioned before, the original framework of the List has been found satisfactory ever since its inception in 1893, in spite of all the advances in medical science and vital statistics.

When, therefore, the drafting of a single morbidity and cause-of-death classification became imperative, the problem arose how to build it over the structure of the old International Lists. In the first place, the principle of classifying diseases by anatomical site, as proposed by William Farr, which had served as the basis for the old International Lists, is being maintained. Secondly, the general arrangement is also being maintained with the exception of Chapter V, "Chronic Poisoning and Intoxication," of the Fifth Revision, the inclusions of which have been assigned elsewhere, and which was replaced by a new Section V, "Mental Psychoneurotic and Personality Disorders."

The new classification has only seventeen main sections compared with eighteen of the Fifth Revision, which is due to the old Chapter XVIII—"Ill-Defined Causes of Death"—being combined now with senility in Section XVI.

The old Chapter XVII—"Violent and Accidental Death"—had never been quite satisfactory. The reason for the difficulties here was the variety of aspects which, in connection with injuries, are of interest to the statistician; it may be the nature of the injury from a medical point of view, or it may be the circumstances of the accident, the cause or means of injury. Previous compromises often proved unworkable, usually because the categories were not mutually exclusive. The Sixth Revision attempts a bold solution of this dilemma by establishing a dual classification for this section: the "E-Code," classifying the injuries by the external cause, and the "N-Code," classifying them by the nature of injury. An example of this would be a sailor who slips on the ladder of a ship and breaks his ankle. In the "E" code the accident would be assigned to E852—"Fall on stairs and ladders in water transport" (External cause), while

in the "N" code, according to the nature of injury, it would be assigned to N824—"Fracture of ankle." It is recommended that in future morbid conditions arising from injuries or violence be coded according to both classifications.

The new classification also contains Supplementary Classifications. Experience, especially in hospital statistics has shown a need for some provision for counting admissions of people who are not actually sick, as for instance in the case of births. Counts of prophylactic inoculations and of certain impairments, as blindness or deafness, which are not otherwise classified as morbid conditions, are also desirable. They, likewise, are covered in the Supplementary Classifications. In order to indicate that these classifications are not an integral part of the new International Statistical Classification, a special system of code numbers has been adopted, with the letter "Y" as the first digit.

Without going into any further detail as to the changes brought about by the Sixth Revision, it should be mentioned that, as in all previous Decennial Revisions, a number of categories were transferred from their old positions to new ones which appeared more appropriate in the light of modern medical knowledge.

The system on which the code of the new classification is based, is described as follows in its introduction:

The proposed classification consists of a list of 610 categories of diseases and morbid conditions, plus 153 categories for classification of the external causes of injury and 189 categories for characterization of injuries according to the nature of the lesion. A decimal system of numbering has been adopted in which the detailed categories of the classification are designated by 3-digit numbers. In many instances, the first two digits of the 3-digit number designate important or summary groups that are significant. The third digit subdivides each group into categories which represent specific disease entities or a classification of the disease or condition according to some significant axis such as anatomical site. Further, the detailed or 3-digit categories have

not been numbered consecutively, but numbers have been omitted in order that the summary character of the first two digits be preserved wherever they are meaningful.

This may be illustrated by the following example: 140 to 148—"Malignant Neoplasm of Buccal Cavity and Pharynx." Here the first two digits (14) represent the whole group of such neoplasms while the third digit indicates certain specific sites *e.g.*, of the "Lip," or of the "Tongue," etc. In subdividing this group it was found that only nine 3-digit categories were required, that is from 0-8. In order to preserve a meaningful 2-digit grouping for the next ten categories, the number 149 was left out and the next group "Malignant Neoplasm of Digestive Organs and Peritoneum" was assigned the numbers 150 to 159.

The decimal system represents a departure from the combined number and letter subdivisions that characterized the numbering system used in previous revisions of the International Lists of Causes of Death. The numbering system adopted in the classification results in greater flexibility and utility since (1) it provides a large number of broad groups which represent significant disease entities or disease groups, (2) it permits the introduction of new categories at later revisions without upsetting the basic numbering of other categories, and (3) it provides economy of operation, both clerical and mechanical. The latter is of particular importance in statistical organizations using modern tabulating equipment and handling large volumes of records.

No additional 3-digit categories should be introduced in the classification except when the list is revised by agreement of the countries using the classification. The numbering system has been designed purposely as a closed system; that is, the third digit under each broad group begins with "0" and continues consecutively for the number of categories in that group.

In the Tabular List of Inclusions of the International Statistical Classification of Diseases, Injuries and Causes of Death, many of the 3-digit categories are further sub-divided into more detailed categories, often on a different axis of classification. Although these subcategories do not appear in the list as shown

in Part I, they are nonetheless important subcategories which will be most useful to nations and organizations wishing to make comprehensive studies of the causes of sickness and disability. The numbers for these subcategories represent decimal subdivisions of the 3-digit code. These subcategories may be considered optional.

For instance, in the group 290-299 "Diseases of the Blood and Blood Forming Organs," 290 covers "Pernicious and other Hyperchromic Anaemias." This 3-digit category is further subdivided into three fourth-digit subdivisions, .0 "Pernicious anaemia," .1 "Subacute combined degeneration of spinal cord," .2 "Other hyperchromic anaemias." Other categories are similarly subdivided.

Any organization requiring more detailed subdivision than that provided in the classification should use the fourth digit for additional subclasses. If such subdivisions are created, it is recommended that letters instead of numbers be used, especially in publication, to designate the additional groups. In this manner it will be clear that the item is not a part of the classification scheme as presented here. Such fourth digit subdivisions, of course, must include only those conditions that are included in the 3-digit category of which it forms a subdivision.

So much about the classification itself which emerged from the Sixth Revision Conference. As previously, we have now also an Intermediate List of 150 causes for tabulation of Morbidity and Mortality, an Abbreviated List of 50 causes for tabulation of Mortality, and in addition a Special List of 50 causes for tabulation of Morbidity for Social Security Purposes. Rules for joint cause selection, including the form for medical certification, are to replace the old Manual of Joint Causes of Death.

Up to now, the procedure for the revisions of the List was based on international agreement entrusting the Government of France with the calling of the decennial conferences. From now on it will be part of the responsibilities of the World Health Organization. The World Health Organization had entered this

field, when, in January, 1947, the International Committee for the Preparation of the Sixth Revision of International Lists of Diseases and Causes of Death—in brief, the Expert Committee—was appointed by the Interim Commission. It was this Committee which together with the United States Committee completed the work carried out by the latter up to that time.

The International Conference in Paris, April, 1948, recommended to the World Health Organization not only the adoption of the Lists and Regulations for their application, but it made also very remarkable contributions in the general field of health and vital statistics. Dr. Stowman, of the World Health Organization, has outlined in his paper for substance of those recommendations which, significantly, arose out of the machinery set up for the revision of the International Lists. Because their implementation will lend a tremendous impetus to the work of demographic statistics in general and health statistics in particular, Dr. Stowman's remarks will bear a brief summation.

Among the recommendations of the Paris Conference to the World Health Assembly is one for the establishment of an Expert Committee on Health Statistics, to be entrusted with the study of problems in the field of health statistics including the recording of births, diseases, and deaths.

Development of a statistical organization within the World Health Organization is urged, as well as the calling of international technical conferences as the occasion requires, and co-operation with the interested sections and agencies of the World Health Organization.

Governments are called upon to establish national committees for co-ordinating statistical activities within the country and serving as links between national institutions and the Expert Committee on Health Statistics.

Subject to final acceptance by the respective Governments, special studies should be undertaken by national committees and administrations on the following subjects:

1. Cancer Registers and statistics.

2. Methods of presentation of statistics of multiple causes of death.
3. Influence of the confidential character of medical certification on the accuracy of resulting statistics.
4. Methods of linking together health statistics with other types of related statistics.
5. Problems concerning statistics of malaria morbidity.
6. Adaption of the International Statistical Classification of Diseases, Injuries and Causes of Death to the special needs of the Armed Forces.
7. Morbidity and mortality from tropical diseases.
8. Methods for obtaining precise statistics on the frequency and causes of foetal death.

These newly suggested activities in the international field seem a very ambitious program, indeed—a challenge and worthy of all our efforts. If one may take the success of the International Conference in Paris, April, 1948, as an omen for the future course of international cooperation in the field of vital and health statistics, one may well look ahead with confidence, and pray that the same spirit may prevail in this and other technical fields of international endeavor.

INTERNATIONALLY COMPARABLE STATISTICS OF FOOD AND AGRICULTURE

CONRAD TAEUBER¹

MORE than 40 years ago, in 1905, an international conference in Rome laid the foundation for organized international efforts for the development of internationally comparable statistics concerning food and agriculture. The International Institute of Agriculture which resulted from that conference was given this assignment as one of its major tasks. At that time, as Hobson points out, such a development was not the result of clearly felt and expressed needs of governments. It was rather the enthusiasm of David Lubin which first led to a recognition of the needs. Lubin, a successful merchant, had turned to agriculture but soon found that he and other farmers were hampered by a lack of statistical information about agriculture. In the proposals for what eventually became the Institute, therefore, the assembly of reliable information about the world's agriculture was of major importance.

From the time of its founding until its absorption into the Food and Agriculture Organization, the Institute devoted a large share of its efforts to the promotion of agricultural statistics. It assembled such information on agricultural matters as could be secured and in turn made it generally available. Through methodological publications, conferences, conventions, and through personal consultation, the Institute kept the goal of an adequate statistical program for agriculture before the nations of the world. In 1925 it began to sponsor a world-wide census of agriculture, and engaged a missionary who went to the ends of the earth, stimulating interest and helping governments plan for their census work. The late Mr. Estabrook, who was loaned to the Institute for that purpose, spent more than four years, visiting eighty countries in behalf

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of that census. Twenty years later it is clear that the results of his work go far beyond the summary publications in which the Institute issued the results for those countries which were able to carry through at least in part the census program.

The oncoming war interfered with a similar venture for 1940, as it also disrupted the network of information about the world's agriculture which had gradually been built up. The Institute staff was sharply reduced, those who remained turned their attention to the summarization of materials which had become available but had not been analyzed or published because of the pressure of current business, and they prepared themselves to resume publication of international statistics as soon as the necessary communications could be re-established. Those first postwar publications leave many gaps and are subject to many revisions, but they did provide badly needed information and made a start in re-establishing statistical series and developing them to meet the new needs.

Governments generally need information on production, marketing, and utilization of food and agricultural products, on the numbers of livestock, on the prices at which products are moved, on the many elements that make up farmers' costs and incomes, and on many other factors which effect the well-being of agricultural workers and the levels of production and consumption. As food production and consumption become more and more matters of public policy, the need for reliable information on these matters is correspondingly increased.

An international organization is dependent on national sources for its statistics. It has neither the authority nor the resources to go into any country on its own. Improvement in statistics and in the comparability of the series that are made available therefore is a cooperative endeavor. This was clearly recognized in the establishment of FAO, for in accepting the Constitution member governments pledged themselves to supply the necessary information to the Organization.

The conditions under which agricultural statistics are assembled necessarily have a bearing on the character and qual-

ity of the statistics. The fact that agricultural production is generally carried out on numerous small holdings limits the character and quantity of the statistics that can be obtained. The wide diversity of marketing and processing channels and the fact that much of the production is consumed on the holding on which it is produced mean that much of the world's agricultural production does not pass through marketing or processing "bottlenecks" where it could be easily counted. Annual fluctuations in crop production may be very large, and this in turn affects the possibility of preparing accurate estimates. Insofar as agricultural statistics are instruments of administration they are subject to various sources of bias which are not always readily detected or allowed for.

The collection of food and agricultural statistics is in virtually all cases a responsibility of governments. Only in a few instances is the production of a crop so concentrated or of sufficient commercial interest that private agencies assemble the requisite figures. Being a governmental responsibility, the collection of statistics about agriculture is necessarily closely related to the structure of a country's government. Food and agricultural statistics are generally collected as part of an administrative operation. Few countries have seen fit to collect and publish current agricultural statistics as a separate operation, concerned only with the production of the statistical information. Under war and postwar conditions production statistics on area and production of crops frequently were related to the controls on the movement of crops which existed, or to the food collection program. Collection of data on the area under given crops may be a by-product of the system of assessment of land for taxation. Wherever a highly integrated system of controls of agricultural products or the movement of food has been developed, the administration of those controls has required some statistics, and the reports required for administration of that program have generally been available also for statistical purposes. But it requires very little study to show that these are not generally the conditions making for

adequate statistics, for here there tends to be an incentive to concealment, consciously or subconsciously. There may of course be controls which would reduce the volume of understatement. In those cases in which the cadastral maps have been kept up to date, the recording of the crops standing in each field may be quite complete. Yield estimates may be based entirely on objective measurements of the outturn of the crop on sample areas. But it is generally true that where the statistics are dependent upon some non-statistical operation, they will be affected by the nature of that operation, and they are likely to be deficient in respect to other objectives. The biases introduced under such circumstances are not necessarily downward—the benefits to be derived from reporting a large number may in turn lead to overstatement, though that is less frequent than the converse.

Another element that makes for difficulty in securing comparable statistics is the fact that the structure of a country's government exerts a profound effect on the statistical program which that country can develop. From the standpoint of an international statistical agency, it is difficult enough to deal with some 60–80 statistical offices in arriving at agreements on common standards and definitions. But it is an oversimplification to assume that such agreements can actually be worked out in that way. Central statistical offices do not uniformly have the power to impose standards and definitions on provincial or district offices. In a small country there may be a highly centralized form of organization, with the statistical operations for the local areas largely under the direct control of the central office. But in some of the larger and important agricultural countries the situation is quite different. Thus the Dominion Bureau of Statistics in Canada relies far more on persuasion than on compulsion to achieve comparability of provincial statistics. The United States, with its extensive system of Federal-State Agricultural Statisticians, combines central direction of standards and definitions for some items with a high degree of local autonomy for others. The Central

Statistical Offices for agriculture in India have been carrying on an extensive program of training of statistical workers in provincial offices as a necessary first step in working out agreements among them. In the Netherlands or in Denmark, both countries with a high degree of homogeneity in their agriculture, the central office makes the determinations. The gradations in this respect among the countries of the world are numerous, and the effect is not uniform in respect to all agricultural products.

The role of the government in economic affairs also has a bearing on the statistics produced. A government which exercises a minimum of control over the economy is likely to need less information about the affairs and activities of its citizens than does a government that exercises a high degree of supervision. Some governments place their major reliance for current statistics on information secured from individuals who are willing to volunteer the information, others may make the supplying of information a requisite to sharing in certain benefits, or require it as one of the civic obligations. In contrast to the mailing of questionnaires to be filled out by cooperative individuals, there is the requirement imposed in some countries that agricultural operators shall report to a specified place on a specified date in order to supply the necessary information to an enumerator there.

Of equal importance is the degree of a government's interest in a given agricultural product. An export crop, like cotton, may be under close governmental control, and therefore be a matter of interest at all stages from planting to export or manufacture. Thus in Egypt, the cotton statistics are generally believed to be exceptionally complete, but in respect to livestock, which is not a matter of such intensive governmental interest and control, the statistics are less adequate. Sugar and tobacco are generally of interest for fiscal reasons and therefore tend to be reported to a high degree of completeness. By way of contrast, the statistics for a crop such as sweet potatoes are far less complete.

Of primary importance to agricultural statistics is the fact that for most of the important agricultural or livestock products, production is distributed over a large number of holders, many of which make only a minute contribution to the total. There are few major products for which satisfactory production statistics could be secured by getting data from a few large operators, as might be the case in manufacturing statistics, where a given number of operators might contribute information for 85-90 per cent of the product. Insofar as the collection of statistical information is dependent upon direct contact with the holder, it will be affected by the resentment which small holders may feel against taxes, food collection, rationing, and many other forms of government control. Where the agricultural holders are illiterate, restricted to their small locality in their marketing activities, or operating on so small a scale that market and price considerations play only a minor role in their operations it may be extremely difficult to show them that any degree of self-interest attaches to their supplying accurate information promptly. For many products and in many areas, securing information from the market place rather than directly from the producer offers little or no improvement—marketing channels may be highly diverse, and the buyers may be essentially equal to the agriculturalists in the level of education, contact with the outside world or the awareness of the importance of statistics to day-by-day operations.

For the products that must be processed before they can be consumed, there may be a real possibility of securing the desired statistics at the processing stage. Cotton generally must be ginned before it can be used, rice and wheat must be milled, livestock must be slaughtered. Tobacco must be cured before it is a salable product, olives must be crushed, etc. But to mention these is to indicate at once the difficulties that may be encountered. Much of the processing can be done by the producer or the consumer himself without going through a centralized processing plant. And for some commodities a large proportion of the processing is done locally, by hand, or with

very simple machines that do not require a high degree of concentration of the product. To meet this difficulty it is frequently the practice to confine the statistics gathered to that portion of the total product which reaches the market or passes through specified processing channels. Thus prior to the war the major statistics for livestock slaughter in many countries were derived from those plants in which a system of inspection was in operation, and estimates of total non-farm slaughter were possible only by making an allowance for slaughter in plants not under such inspection. Except in the most commercialized vegetable growing areas, the statistics on vegetable production are generally highly inadequate, since production for home consumption and production for purely local consumption tend to be reported inadequately. The extent to which the product is consumed directly by the operator and his family has a direct and vital bearing on the completeness of the statistics for the product. In some cases the available statistics frankly seek to exclude home consumption, even though that may be a very considerable proportion of the total production of the country. In others, an effort is made to include all production, and special attention is given to that portion which remains on the farm. In some countries it is not known what contribution home consumed products make to the total volume of production. For many products the uncertainty on this score is one of the major difficulties encountered in comparing the data supplied by individual countries.

The volume of production of feed and forage crops is particularly difficult to estimate, because these products are quite generally the product of the holding on which they are consumed. Trade in these commodities is far less important than the trade in the crops intended for human consumption. Another difficulty in this connection is that the same product may be considered as food in one area or at one time period but be used primarily for livestock feed in another.

Not the least of the difficulties grows out of lack of agreement on what constitutes production. Is an animal intended

for slaughter to be accounted for in production statistics at any time other than when it is sold?

Since the majority of crops are annuals, there is no necessary relationship between the area grown and the total volume of production in a country reported in any one year. Production may fluctuate widely from year to year because of weather changes, insect infestations and the other hazards to which crops are subject. Annual fluctuations are of course less important for the larger livestock, because of the long period of time required to build up or replenish a herd, but the total volume of hog or sheep production or of poultry production may vary widely from year to year.

The conditions under which products are harvested also have a significant effect on the statistics available. In the case of crops there is often a recognized harvest period, to which the volume of the harvest can be related. But in the case of some crops and of products like milk or eggs, the harvest is continuous, though subject to seasonal fluctuations, and it becomes much more difficult to arrive at satisfactory results. Here sampling involves time as well as definition of the universe.

Technical progress entails certain difficulties in the comparability of statistics. Improvements in statistical techniques themselves generally involve difficulties in comparisons from time to time, for what appear to be increases in production may turn out to be simply improvements in the coverage of the statistical data. Technological improvements in agricultural production may introduce significant difficulties. In most countries estimates of yield are based on judgments rather than on objective methods, such as crop cutting. There is therefore a danger that the yield estimates may not fully reflect the changes in yield that occur. The rapid introduction of a new variety, comparable to the spread of hybrid corn in the United States could easily lead to an underestimate of yields. Failure to take into account the rapid increase in the acreage to which the new level of yields is applicable may also affect the validity of production figures.

Units of measure provide another source of difficulty. The metric system is generally accepted as the system of units in which measurements are to be reported in international tables. But the adoption of a single uniform system of weights and measures for reporting purposes does not assure comparability. There is first of all the need for converting from the units in which individual countries report: acres to hectares, bushels to metric tons, short or long tons to metric tons, gallons or barrels to hectoliters, and the like. While measures of weight provide more nearly comparable units for measuring grain than do measures of volume, it is nonetheless true that in many cases it is necessary to convert measures of volume into measures of weight. Finding the best applicable factors for conversion may require considerable research, as well as revision from time to time. Within many countries there is also considerable variation in units of measure. Standardization of weights and measures presupposes a high degree of integration within a country and a well-developed system of communication and trade. But in large areas of the world that presupposition is lacking, and the local reports are given in terms of local units of measure, which may themselves vary considerably from one area to another, or even within the same area. Undefined terms, such as load, basket, bunch, box, or measure become units for counting and there may be no felt need or real interest within the country in having them standardized. Even units for the measurement of land area are subject to many local variations, for here too the lack of specificity in the meaning of the terms used may create no difficulties for the people most directly concerned. The need for the expression of quantities in precise, defined terms is not felt in many cultures. A large proportion of the world's trade is carried on without such definition.

What is true about mere measurement of the total quantity of a commodity corresponding to a general name, is even more true if the attempt is made to become more precise in terms of grades or quality. Standardization of grades is a concept of limited applicability at the present time, and such considera-

tions as moisture content, or the inclusion of extraneous matter with the product are not generally recognized as useful.

The fact that a product may be marketed or stored at various stages of processing also creates difficulties, for it is not always easy to convert the reported units into some standard base, such as the conversion of wheat flour to wheat equivalent when milling ratios are subject to rapid fluctuations and wide variations among countries. The recent efforts to achieve uniformity in the use of the term "paddy rice" illustrates the difficulties that are to be encountered there.

Product names vary widely and it is not always clear how a given product is to be classified. The problem of definition in the face of widely different practices is illustrated also with regard to the definition of terms to be used in reporting livestock, for instance the definition of the word "cow." Though virtually everyone would recognize an animal as a cow if he saw a specimen of the proper species, such identification is not sufficient for statistical purposes. For a comparison of yield figures, or of potentials for the expansion of milk production it is important that there be precise answers to such questions as, is an animal of the proper species and sex to be designated as a cow when she achieves a given age, *e.g.* two years in the temperate zones, or is it necessary that she have produced a calf, or should she be classified as a cow if she has been bred? Here the national statisticians encounter difficulty in accepting a definition in terms of agreed-upon standards, for their usage must remain consistent with the generally accepted usage within the country, and they may find considerable difficulty in flaunting common usage with a concept which may be statistically more acceptable, but violates "common sense."

The difficulties encountered in developing internationally comparable agricultural statistics are compounded in the case of food statistics. Information on the amount of food consumed in a country is only rarely the result of direct inquiry. In recent years, it has been possible to arrive at some estimates through a knowledge of the rationing allowances, with some

estimates for the consumption of the specified commodities without benefit of ration coupons. In a few cases, notably in the United Kingdom, and in postwar Japan, dietary surveys are conducted currently as an aid in knowing what food consumption is. But dietary surveys, repeated at short time intervals, and sufficiently extensive to provide a sample of broad population groups are not general. Therefore the usual method is to estimate food supplies available at the retail level and assume that this approximates consumption. This means that total supplies resulting from production, foreign trade, changes in stocks and waste are estimated; then the other uses, such as industrial uses, feed, and seed are subtracted, and the remainder is assumed to be available for human consumption. That there are many uncertainties in such computations is evident. And the conversion of the quantities so estimated into nutrients involves a further hazard in that the nutritive contents of foods vary from area to area and may vary even more widely with the methods of storage and preparation.

This account of some of the problems encountered in the development of internationally comparable food and agricultural statistics has so far overlooked one of the major sources of difficulty at the present time. That grows out of the fact that sometimes these statistics are clearly instruments of national policy. With the existing internal weaknesses in the statistical system there is relatively little safeguard against the pressures that arise if it appears to be to the advantage of the country to have its figures show high or low production. If a large portion of a total must be estimated on admittedly inadequate bases, the statistician, concerned with the national welfare, would find it difficult to resist the conscious or subconscious desire to have the results be "right," even when there is not deliberate manipulation of the results. An international agency may know what these factors are, and for operating purposes it may assume that certain corrections are needed, but it generally lacks the facilities to determine with any precision what the corrections should be. In one recent instance the

early production estimates of a country indicated that the harvest would be quite large, the weather reports issued during the season indicated that the season was an exceptionally favorable one for the maturing of that crop. However, without any explanation, the final estimate of the crop shows a sharp reduction from the earlier figures. It was known that at that time the country involved was conducting negotiations in which it might find it advantageous to have the reported figure on the low side. Therefore, to some persons using these figures it seemed perfectly obvious that this was the case. But in the absence of more precise information as to what happened, the course of action for an international office dealing with statistics is not at all clear, for by what process could it substitute its own figures for that produced by the government? And despite the circumstantial evidence, it may well be that in this case the final estimates were far sounder statistically than the earlier ones. Such situations are not uncommon.

World-wide coverage of agricultural statistics is still a goal for the future. Large land areas, and large populations are included in the countries for which there are virtually no agricultural statistics. And in some other cases in which statistics are known to exist, national policy now decrees that they may not be made available to the world outside.

Assisting in the improvement of agricultural statistics is one of the assignments given by its member governments to the Food and Agriculture Organization.

One of the efforts currently carried on is the promotion of a world-wide Census of Agriculture in 1950. The census itself will in each instance be carried out by the nation concerned, in accordance with the laws and administrative organization within the country. The role of FAO is to encourage governments to agree to such an undertaking, both to improve their national statistics and to contribute to the internationally comparable picture of the world's agriculture which such a venture would afford. FAO has developed a list of items proposed for inclusion by all governments in their census programs, and has

developed a set of concepts and definitions on which it is hoped to develop comparable statistics. A set of standard tables has also been proposed and it is planned to issue the major statistics gathered through this project in comparable form. In addition, staff members are assisting governments, on their request, in working out the problems incident to the planning and organization for a census.

Current publications, especially monthly and annual publications are an important stimulant to improvement in the statistics supplied by governments. Even in the short period of time that the FAO statistical publications have been under way there has been a marked improvement in the statistics that become currently available.

Another tool that is proving effective is the computation of food balance sheets, a set of standard procedures for converting the information on production, trade and utilization of agricultural products into information on the quantity of calories, vitamins, and nutrients available to a country's population during a consumption year. Although this work is still in its early stages, it has been possible to develop such balance sheets for some fifty-seven countries, and work in this field is going forward cooperatively with governments.

Consultation on current statistical problems between qualified staff members and the technical and administrative members of governments is currently under way. This involves a range of activities, such as advising a government on a program of agricultural statistics which might be best adapted to its needs and resources, advising on the best techniques for meeting a specific problem that has arisen, or working out a regional program for developing comparable statistics in a given field. At a meeting of representatives of governments interested in rice which was held early in 1948, FAO was requested to take steps to improve the comparability of the statistics relating to rice. That work is going forward.

A major problem is the need for more well-trained personnel. Improvements in national statistics must be the result of the

work of individuals within each country who are able and willing to work out methods for making their statistical products most useful to their own country. Short term and specialized training programs can be of some use to them in providing better tools for their work and a greater appreciation of the methods which are available. Such a training school for Near East countries was held in Baghdad early in 1948. A training school for prospective provincial census officers was conducted in Nanking earlier this year as a cooperative effort by the Chinese Government and FAO. A program for training statistical workers in Latin American countries is currently in operation in Mexico City, oriented to the proposed censuses of agriculture and population. This school, which has a student body of fifty-five persons from sixteen countries, combines classroom work with an experimental census to be carried out in an area near Mexico City. This is a cooperative undertaking between the Government of Mexico, the Food and Agriculture Organization, the United Nations, and the Inter American Statistical Institute. In addition, technicians from the United States, Cuba, and Panama are participating in the work. Other training centers are contemplated, utilizing resources available in a region, and utilizing the cooperation of other international agencies, as they become available.

Such a training program, lasting for about four months, cannot be a substitute for the longer term training programs and the basic education that are needed if the level of personnel assigned to statistical activities is to be raised to the levels necessary to do the jobs that await them. This is of course an activity that goes far beyond the field of agricultural statistics, and includes all of the official statistical activities. In this field there is need for expansion of educational facilities and a real effort to make the facilities that exist available to persons in all countries. Exchange of technical personnel and short term loans of workers are additional methods that are available for use. In such activities it is essential to recognize that no country has a monopoly on the technical knowledge

and skills that are needed, and that the training that is carried on should be related to the circumstances in which the individual worker will find himself. Unless the statistical worker can demonstrate that he has a reliable product which is highly useful to his government his endeavors to secure increased support and facilities are likely to meet with obstacles. This is a matter of concern to such agencies as the IASI and the ISI, as well as to the governmental statistical agencies. It is a long range problem calling for long range action. Neither the problem nor the solution are new. They do however have a new urgency about them, for in recent years there has been a rapid expansion of statistical services related to agriculture, without a corresponding increase in the numbers of persons technically qualified for such work. Given a base of well-qualified persons in national statistical offices, some of the problems that now loom large in the development of agricultural statistics will become much easier of solution.

PROBLEMS IN THE COLLECTION AND COMPARABILITY OF INTERNATIONAL LABOR STATISTICS

ROBERT MORSE WOODBURY¹

MY discussion of the subject assigned me will be limited principally to the experience of the International Labour Office in its work of standardizing international labor statistics over a period of more than a quarter of a century.

The topic assigned is labor statistics, with the two subjects employment and unemployment given special mention. This special mention is perhaps particularly appropriate in view of the emphasis placed on these topics at the sessions of the Sixth International Conference of Labour Statisticians in Montreal, in August 1947. But it should be noted that this Conference was the sixth in a series at which these and other topics of labor statistics have been considered. It may, therefore, be appropriate to review briefly the different topics of labor statistics with a view to summarizing their status in regard to international comparability before coming to the detailed discussion of employment and unemployment statistics.

But first a word should be said in regard to the general problem of international comparability. International comparability may be obtained in general by unification of the various statistical concepts, definitions and operations—to use a picturesque expression—“from the bottom up” or “from the top down.” The method of unification “from the bottom up” is that adopted within any one jurisdiction to obtain uniform statistics and includes the adoption of identical statistical forms, the adoption of identical procedures, identical interpretations of crucial terms, and unified or identical tabulations, with the result that the statistics obtained will be for all practical purposes comparable. If the method can be extended over more than one jurisdiction so that identical forms and procedures, etc. are followed, comparability can be considered to be

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achieved for such statistics. This method is not usually feasible, however, in international collections. On the contrary, the usual approach in the problem of obtaining international comparability is to unify "from the top down." Agreement takes place, first, in the purposes which the statistics are designed to serve. This unification of purpose leads to a unification of the concepts in which the purpose is defined and it may be extended to include agreement on the precise elements and limits of the concepts. If then, in addition, agreement can be reached on technical methods, or even extended to the statistical forms and tabulations to be adopted in the technical carrying out of the purposes, the unification from the top down tends to approach the results of unification from the bottom up. The primary and essential requirement for international comparability of statistics is agreement upon purposes and concepts. An important advantage in placing agreement on this objective as the primary goal in the quest for international comparability is that it focuses attention upon the relations between the statistics gathered in the different countries and this goal. Thus, if agreement is reached on the objective of obtaining complete statistics of the unemployed, the gap between the figures of the unemployed as reported in trade unions for example and the total of the unemployed in the country becomes evident. Thus, this approach may lead to the discovery of gaps in national statistics which need to be filled in order to make the statistics conform to the objective. From this point of view, unification from "the bottom up," though stemming from identity of forms, definitions and procedures, may actually fail to obtain the true objective if the figures as collected are themselves not wholly satisfactory.

An illustration may make these points clearer. Thus, in the field of migration statistics, with which Mr. Lacroix is dealing at length, the fundamental objectives and concepts are reasonably clear. Agreement upon these should be easily reached. But in many cases, the sources available in national statistics may fall short of fulfilling the recognized purpose. Thus, in a

country which depends for migration statistics upon statistics of arrivals and departures at the seaports, arrivals and departures by air may be left out of the reckoning, or, if it is a continental country, arrivals and departures over the continental border may be neglected. The adoption of identical forms, procedures and definitions, no matter how thorough, if limited to arrivals and departures at seaports, will leave obvious gaps in the statistics, and such data will fail to fulfil the purposes of migration statistics. These gaps appear most obvious when international comparisons are sought. Agreement upon purpose and on the concepts which embody this purpose is evidently of prime importance for international comparability of statistics.

The goal pursued by the International Labour Organisation in its standardization of labor statistics has therefore been in first instance to obtain agreement upon objectives and on the concepts and definitions which embody these objectives. This objective is sought through the International Conference of Labour Statisticians in which the representatives of governments who have the leading official positions in the field of labor statistics come together to discuss these problems of international comparability. For these meetings the Office prepares documentations on each of the topics of the agenda, in order that the discussion may be focused upon specific proposals, and presents a series of resolutions for the consideration of the Conference. After discussion and consideration of the various problems involved, the Conference adopts resolutions embodying its recommendations to serve as international standards for statistics in these fields.

The first of these International Conferences was held in 1923 and considered the subjects of the classification of industries and occupations, wages and hours of work and industrial accidents; the second held in 1925 took up cost of living index numbers, unemployment and real wages; the third, in 1926, considered family budget inquiries, collective agreements, and industrial disputes. A fourth Conference, in 1931, was devoted to the subject of international comparison of real wages. A

fifth Conference, in 1937, proposed a Convention concerning the statistics of wages and hours of work which was subsequently adopted by the Twenty-fourth International Labour Conference in 1938. The Sixth International Conference of Labour Statisticians held a year ago in Montreal had on its agenda the topics of employment and unemployment statistics, cost of living statistics and statistics of industrial accidents. The agenda of a Seventh Conference, in October 1949, includes four topics, the classification of occupations, wages and payroll statistics, methods of family living studies, and labor productivity.

In all these different topics, thus briefly mentioned, except the classification of industries, the approach to international standardization may be characterized as "from the top down." With regard to the classification of industries, the approach is from a different direction. In this case agreement appears to be reached more easily in terms of specific industry groups than in terms of general objectives. A classification of industries has been adopted by the United Nations Economic and Social Council upon recommendation of its Statistical Commission. It is proposed to develop the classification further by drawing up a detailed list of industries showing their allocation to specific industry groups.

Of the other topics, other than employment and unemployment to which I return later, three deserve special mention.

With regard to cost of living index numbers, agreement as to purpose has in general been reached. The concepts are clear. There is likewise a fair degree of uniformity in technical methods. Practically all countries use the method of the weighted aggregative index numbers. In details, great diversity is to be found. The selection of goods to be priced, methods of weighting, methods of collecting prices, etc. are not uniform. These tend to be brought nearer together by the adoption by one country after another of technical methods which have proved useful in practice in one or another country. Questions of black market prices and during period of rationing, problems of ad-

justing the index to take account of the insufficiency of the rationed allowances to meet acceptable living standards are among the problems still requiring attention.

So far as family living studies are concerned, substantial agreement has been reached on the basic objectives. The problem of selecting families for study and the application of sampling techniques is in the foreground of interest. A second important question of technique is the relative advantage of interview as against the account book in the procedure of collecting information, in regard particularly to the reliability of the results.

The question of consumption scales illustrates the issues to be faced in seeking international comparability. The idea of consumption scales is to reduce families of different sizes to a common unit for purposes of comparisons on specific points. These points on which comparisons are sought include calorie requirements, protein requirements, requirements for specific minerals and vitamins, as well as economic requirements for food, shelter, clothing and all items. Analysis of these requirements leads to the conclusion that separate scales are required for each purpose, and further, that the elements of international comparability, especially in the economic scales, must be sought in the purposes, rather than in the specific scales themselves.² A calorie scale for a European, for example, may conceivably be different from that for a person belonging to a short-statured race, as the calorie requirement for the adult male is different in these two cases. An economic scale which includes elements which depend upon local prices may obviously be different in one locality from that of another locality with different prices. In such cases, the essential comparability must rest in identity of purpose rather than in identity of the scales.

A third field is that of wage statistics. In this field, agreement must be reached at the outset on the objectives of wage data:

² See Woodbury, Robert Morse: *Economic Consumption Scales and Their Uses. Journal of the American Statistical Association*, December, 1945.

whether rates or earnings, whether for a larger or smaller range of industries, whether for each sex separately, for specific occupations and industries, etc. For useful results, the material must be analyzable into categories and classified in such a way as to furnish a basis for comparability. Thus, international comparisons of wages or earnings may require a classification by sex, industry, and occupation. The amounts of earnings must include similar elements in each case, namely, to show the total amount earned by the individual concerned, including employees' contributions to social insurance, special bonuses, and similar receipts and allowances, properly credited to labor.

In the field of wage statistics, the Fifth International Conference of Labour Statisticians recommended a Convention with certain minimum specifications for wage statistics which could be ratified by the different countries, and then would represent the acceptance by the ratifying country of an obligation to compile wage statistics along these lines. This is a procedure to extend the adoption of an obligation to compile data in a specific field in accordance with certain specified minimum standards. An examination of the results of this procedure is being made with a view to appraising its usefulness.

Turning now to the two fields specially mentioned for the present paper, the basic objective, in unemployment statistics, is the definition of the unemployed person. This should properly include all persons who are not at work and are looking for work. It excludes those on strikes, those who are ill and unable therefore to accept work if offered. It includes persons looking for work even though they may not have been previously employed.

The International Conference of Labour Statisticians meeting in 1925 considered this question of unemployment and in its resolutions included a general statement on the ideals to be sought in the statistics. The differences between the definitions which were described as ideal and the definitions adopted in practice under the different technical methods used to obtain figures on the unemployed were striking and considerable. The

resolutions adopted by the Conference expressed preference for certain types of unemployment statistics. In the first rank were unemployment statistics derived from unemployment insurance records, then statistics derived from employment exchange records, and finally the statistics of trade union funds or trade unions. It may be noted that the basic element in the definition of the unemployed included as an indispensable and sufficient condition that the person should be unemployed for at least one day.

The Sixth Conference returned to the subject of unemployment statistics in conjunction with statistics of employment. In the light of more recent developments the relative value of the different sources of unemployment statistics was differently appraised. The newly developed labor force sample surveys were recognized as sources of the first importance. Statistics based on the records of employment exchanges where these latter are not connected with an insurance scheme were considered subject to such reservations that, by implication, they could rank only after trade union statistics of unemployment. In the discussions at this conference employment and unemployment statistics were placed in close relation to each other. The two combined represent the labor force. The resolutions adopted were intended to cover not only current series of employment and unemployment but also bench-mark data derived from census and other general surveys.

From an international point of view, the agreement on the concept of labor force was especially significant. This concept replaces the other concepts associated with the terms "gainfully occupied" as used in the English speaking countries and "active population" as found in countries using French or Spanish. The concept of "labor force" as popularized also in the term "manpower" appears to supply the basic idea upon which agreement can be reached. This concept is defined, further, in specific terms to include the employed and the unemployed. A person is considered employed in this sense, if he is occupied as employer, a person working on his own account, as

employee, or as an unpaid family worker. Thus, in place of the old term "gainfully occupied" which was always interpreted to include the unemployed—who are neither occupied nor receive gain—and was usually interpreted to include the unpaid family worker also, a new term "labor force" with its clearer concept is substituted. Similarly, the old term "active population," which was usually, though not always, interpreted to include the "unemployed" is replaced by the new term which clearly includes the unemployed as well as the employed.

The adoption of the concept of labor force should bring about a greater degree of uniformity in the statistics on this topic whether census data on employed, unemployed or labor force, or series showing changes from time to time in this important economic sector of the population.

This is supplemented by specifications of the terms in certain definite cases. Thus, in the labor force and among the employed are counted employers, persons working independently, wage earners and salaried employees, and unpaid family workers. Excluded from the labor force are students who have no remunerative occupation, housewives, persons who are sick or incapacitated. It is hoped that with agreement on these concepts as thus defined and illustrated by specific cases that the statistics on this topic will in the future be compiled and collected on more comparable bases.

Subsequent to the meeting of the Sixth International Conference of Labour Statisticians, the Statistical Commission and Population Commission of the United Nations have also considered these questions. In particular the Population Commission considered in detail the questions to be asked in the population censuses on the economic characteristics of the population. Its recommendation also adopted this basic definition of "labor force" or the "economically active population," with the same supplementary definitions in specific cases.

There remains the question of the techniques of collection. In censuses of the labor force two different techniques are used. The first, or the so-called "labor force" technique, asks about

the actual employment or unemployment status during the week prior to the date of the census. It is thought that this form of inquiry will obtain more accurate replies, since the question relates to the week just past. The second technique asks for "usual occupation" which is subject to various interpretations depending upon the application of the term "usual." In practice, the difference between the two techniques would of course depend upon the degree of labor mobility. Where persons are employed year after year in the same industry or occupation the two questions would receive the same answer, since the occupation or industry in which the person is employed during the week prior to the census would be his usual one. On the other hand, where a considerable occupational mobility exists, the inquiry as to the actual employment during the week prior to the date of the census should obtain a much more accurate and detailed picture of employment conditions; in such a case an inquiry as to the usual occupation may merely raise confusion. In certain respects, furthermore, notably in the case of seasonal work and in the case of partial employment, the question relating specifically to a particular week should obtain much more satisfactory data than the question as to usual occupation. In the United States and Canada where the labor force technique is used, the census is supplemented by a monthly or quarterly survey of the labor force on a sampling basis and the census data thus tie in with these monthly estimates since both are taken on the same basis. For countries like the United States and Canada, the labor force technique is considered to represent a substantial advance in accuracy and precision in the picture of the labor force over what was obtained by the technique of the "usual occupation" question.

It should be emphasized, however, that the objective, namely to give a true picture of the labor force, that is the employed and unemployed available for work, is the key to international comparability of statistics on this topic.

One further fact might be emphasized, with especial reference to the unemployed. A question asked at the census with

regard to "usual occupation" does not give good results on the amount of unemployment. To secure data on unemployment, the reference should be made for a specific period, at the date of the census or just prior to it—the shorter the better. Statistics of persons who are out of work and are looking for work as thus obtained should be comparable with other data obtained in a similar way by labor force sample surveys, and with other data with similar minimum definitions as to the length of employment. Thus, this technique should not only improve the data on the unemployed, but by definitely including them as a part of the labor force and providing means for their enumeration, should improve substantially the return of this sector of the economically active population.

This discussion leaves out of account many interesting and important developments. Thus as to the classification of persons in the labor force, a standard classification of industries has been adopted by the UN Economic and Social Council on the recommendation of the Statistical Commission, as already noted; a standard classification of occupations is being elaborated by the International Labour Office and will be considered by the Seventh International Conference of Labour Statisticians; a standard classification according to industrial status was considered by the Committee of Statistical Experts of the League of Nations and by the Sixth International Conference of Labour Statisticians. Problems of tabulation of results were considered in some detail by the Sixth International Conference and their recommendations are embodied in the resolutions adopted by that Conference.

Thus remains, finally, the question as to the adoption of these recommendations by the different countries. This is a question for the future to answer; it may be noted, however, that the substantial agreement between the recommendations of the Sixth International Conference of Labour Statisticians and the Population Commission, and it is to be hoped, of the Committee of the 1950 Census of the Americas, will result in a substantial improvement in the comparability of labor statistics.

STATISTICS OF THE DISTRIBUTION OF FAMILY INCOMES BY SIZE

J. B. D. DERKSEN¹

STATISTICS of the size distribution of family incomes are an indispensable source of information for the proper treatment of many problems in the field of applied economics. Unfortunately, the difficulties encountered in the collection of these important data are so great, that only in a few countries have statistical inquiries been carried out. In this paper an attempt will be made to review the applications made of family-income statistics, and to indicate the problems arising in the collection of these data, including a discussion of the basic concepts. Attention will also be paid to the problem of international comparability, a subject in which the Statistical Commission of the United Nations is particularly interested.²

Statistics of the distribution of family incomes by size show how many families there are with an aggregate family income of a given size. Such statistics are usually presented in the form of a frequency table, showing how many families there are with an annual income, for example below \$1,000, how many with an income between \$1,000 and \$2,000, between \$2,000 and \$3,000, etc. The size of these income brackets is usually chosen in such a way that the intervals are rather small for the lower and middle-sized incomes, where there are many families, whereas for the higher income brackets wider limits may be chosen. For example, the interval from \$6,000 to \$10,000 may be chosen as one group, and all incomes of \$10,000 and over may likewise constitute one group. We shall later see what factors determine the choice of the various income brackets.

Statistics of the frequency distribution of family incomes by size may, if available, prove very useful for various purposes. The following list is not supposed to be exhaustive.

¹ Chief, Section for National Income Statistics and Research, Statistical Office of the United Nations.

² Cf. Economic and Social Council Document E/577, 23 September 1947.

1. An important group of applications is in the field of rationing. It is well known that the consumption of many commodities, such as butter, meat, sugar, textiles, fuel, varies with the size of the family income. In the lower income brackets consumption of certain commodities which are more or less luxuries, falls off rapidly with decreasing incomes. If a system of rationing is introduced the people in the higher income brackets will be much more affected than those in the low income groups. Consequently, it may very well happen that prevailing rations still surpass actual demand in the low-income brackets. This information is very useful in connection with the functioning of the rationing system. It may very well be that an unwanted black-market trade develops in coupons, supplied by people in the low-income groups. In times of increasing production the information may also be used to determine when rationing may be abolished without causing hardship to the majority of the population.

Very often consumption depends not only on size and income of the family, but also on age, occupation and other factors. Such detailed information, if available, may be brought into relationship with data on the distribution of family incomes by size and may help to refine the systems of rationing used. It may safely be said that a number of countries would have had fewer problems with their rationing systems if more detailed data on the income distributions had been available. In some cases, the experience obtained has worked the other way around. Through rationing, data became available on family incomes which otherwise would not have been collected. An example is offered by the rationing of cheap fats in the Netherlands in 1941. Coupons to obtain these fats were issued only to families with an income below a certain limit (dependent upon the size of the family). To be eligible for these ration cards, applicants had to fill in rather detailed data on the incomes of themselves and members of their families. Although the data naturally suffered from certain deficiencies, they have been used both by the Central Bureau of Statistics at The

Hague, and by the municipal bureaus of statistics in Amsterdam, The Hague, and Rotterdam, to obtain information on the frequency distribution of the low-income groups.

2. There are many applications of the size distribution of family incomes in the field of social welfare. Low-cost housing projects, social security or health insurance schemes, etc., are usually made available only for people with incomes below a certain limit. If such schemes are set up, it is important to know beforehand what the coverage will be, or in other words, how many people fall into the income groups concerned.

3. In the field of economic statistics, particularly statistics of consumption, statistics of family incomes are used in combination with family budget statistics to measure the total outlay on various consumers' goods and services. Family budget statistics provide information on the pattern of consumption of various income groups. But the income distribution of the sample of families used in compiling such statistics is usually not representative of the population as a whole. Therefore, the data must be reweighted on the basis of the actual number of families in each income bracket.³

4. Business economists who are interested in analysing the markets of the products of their firm, are likewise interested in statistics of family incomes as one of the factors determining the total volume of demand.

5. Statistics of family income by size offer important basic data in relation to such problems as the effect of a change in the income distribution upon the total volume of saving. In the interest of a greater economic stability, and as a basic element in the realization of a full employment policy, the government may wish to increase total consumers' outlay and to re-

³ It would exceed the limits of this paper to discuss the problems of the measurement of the aggregate consumption of various consumers' goods and services in detail. Sometimes this consumption is measured on the basis of the formula: consumption-production plus imports less exports less increase in stocks. In many cases, however, the method based on family budget statistics combined with data on the distribution of family incomes by size may also be used, either to check the aforementioned method, or as an independent method of estimating consumption.

duce total saving by affecting the income distribution through proper taxation policies.

In compiling statistics of family incomes, agreement must be reached on what constitutes a "family" and on the definition of income to be used. In the studies on *Income of Nonfarm Families and Individuals*, issued by the United States Department of Commerce, Bureau of the Census, the term "family" refers to a group of two or more persons related by blood, marriage, or adoption and residing in the same household. (A "household" is defined as a group of persons living together in a dwelling unit, usually with common housekeeping arrangements, or a person living alone.)⁴ Lodgers and servants not related to the head of the household are considered as additional families, and not as part of the head's family. In the Netherlands, "household" and "family" are defined in a similar way, except that households formed by two or more unrelated friends are considered as families, whereas the United States Bureau of the Census considers them as two (or more) "individuals not in a family."

Other differences may arise with respect to territorial coverage and the inclusion or exclusion of special groups. Whether members of the armed forces temporarily stationed abroad should be included or not may be decided differently. In the United States, military personnel living on post and inmates of institutions have been excluded, but in Holland they have been included. A technical detail is that persons who died or emigrated prior to the date of interview (April, 1947) are not reported in the United States Census inquiry.

Differences of minor importance may arise from the inclusion or exclusion of such small groups as resident employees and other non-inmate residents of institutions, persons living in large lodging-houses, residents of hotels, labor camps, ships, etc.

There is much less uniformity in the definitions of income

⁴ Cf. *Current Population Reports, Consumer Income*, Series P-60, No. 1, 28 January 1948, "Income of Nonfarm Families and Individuals: 1946."

used. The income definition used in the sample surveys of the Bureau of the Census excludes from the net income from operation of farm or ranch the value of food produced and consumed at home, and inventory changes. The net income is overestimated in that depreciation charges are not deducted. The deviations are due not to conceptual discrepancies but to the difficulties of obtaining and of evaluating these items. In general, differences in defining or measuring income may be due to conceptual or statistical differences in treatment, for example, of:

1. Income in kind.
2. Net rental values of owner-occupied houses.
3. Imputation of interest to holders of savings accounts or bank deposits.
4. Premiums for life insurance.
5. Employees' contributions to social insurance and pension funds.
6. Allowances of the armed forces and their dependents, including mustering-out and discharge pay, bonuses, etc.
7. Gifts, inheritances.
8. Capital gains.
9. Proceeds from sale of assets and dissaving.

For the purpose of measuring family income all wages, salaries, interest, dividends, rents, profits and entrepreneurial incomes received by family members will be included, and also transfer incomes, such as for example pensions, terminal leave payments, social security payments, annuities, unemployment assistance; but not capital transfers. Items (7), (8) and (9) will have to be excluded.

The modern sampling techniques seem to offer the appropriate method for obtaining statistics on the distribution of family incomes by size. The method has been used on an extensive scale in the United States, and plans are being made to apply it also in other countries, *e.g.*, Italy.⁵ The Sub-Commission on Sta-

⁵ Fegis, P. Luzzato: *Family finances and the distribution of the national income in Italy*, Proceedings European meeting, Econometric Society, The Hague, September, 1948.

tistical Sampling of the Statistical Commission of the United Nations has given considerable attention to the subject in the framework of its recommendation for a wider use of modern sampling procedures. Details of the method will not be repeated at great length here, but attention may be drawn to the difficulties encountered in the Census Survey carried out in the United States. It is stated that the figures obtained are subject to errors of response and to nonreporting. "In most cases the schedule entries for income were based on memory rather than on records, and in the majority of instances on the memory or knowledge of some one person, usually the wife of the household head." "The memory factor in data derived from field surveys of income probably produces underestimates, because the tendency is to forget irregular sources of income."

"Nonreporting of income, *i.e.*, the failure to obtain any or all the income information because of the refusal, absence, or poor memory of the informant, may occur at any income level." "There is considerable evidence that nonreporting is more prevalent at the upper income levels."

Statistics of income tax usually refer to the incomes of *individuals*, with the possible exception of the returns of husband and wife, which in many countries are considered as one joint return for the purpose of assessment. Income tax statistics do not show relationships between the individual income recipients and therefore they cannot easily be used for the purpose of estimating the distribution of family incomes. Also, the concept of assessable income as defined by the law, may differ with respect to the inclusion or exclusion of such items as were listed above. People with income below the tax exemption limit are usually not included in such statistics. Sometimes incomes are shown before deductions granted by law—for example, for size of family or for life insurance premiums paid—and sometimes they are shown after such deductions.

On the other hand, income tax statistics have the advantage of covering a very large percentage of the population, particularly in those countries where the tax-exemption limit is low.

If in addition the tax returns give information on the number of children of the assessee, as is sometimes the case, and if it were possible to combine the returns for members of the family with those of the head of the family, it might be possible to obtain some information on the distribution of family incomes. The Statistical Office of the United Nations, in accordance with a recommendation of the Statistical Commission of the United Nations, is collecting data on income-tax statistics and hopes to secure a greater uniformity in the compilation and presentation of data in this field. Statistics of incomes subject to income tax for one or more years are available for the following countries: Australia, Canada, Czechoslovakia, Denmark, Eire, France, Germany, Netherlands, Netherlands Indies, New Zealand, Palestine, Sweden, Union of South Africa, the United Kingdom, and the United States.

In the Netherlands an attempt has been made to estimate the size distribution of family incomes on the basis of income tax statistics, combined with data on wages of young unmarried workers, wages of agricultural workmen, census data on the distribution of families by the size of the family, and certain data on the number of children per assessee in each income bracket, as shown in the income-tax statistics. The distribution of family incomes was derived from these data on the basis of certain assumptions regarding the distribution of earnings of children living in families which as a first approximation was assumed independent of the income of the head of the family.⁶

A greater international comparability of statistics of the size distribution of family incomes may be reached along the following lines:

It is probably not very difficult to obtain agreement on the definition of family to be used. With respect to the definition of income to be used, agreement may not be realized so easily. If agreement on the definition and the treatment of each of

⁶ Derksen, J. B. D.: *Statistische berekeningen over de verdeling der gezinsinkomens*, Maandschrift, 1944, No. 5-12, 16 pages.

the items previously listed were reached, considerable progress would be made. However, it should be taken into account that statistics of the distribution of family incomes are related to other important elements in a country's statistical system:

1. There is a relationship between the data on income distributions and the national income statistics of the country concerned. If a greater uniformity of national income statistics were realized, the family income statistics probably would also be affected.

2. There is also a relationship with the family budget statistics, since data on the distribution of family incomes will often be used in connection with the family-budget data for the purpose of estimating total consumption of various goods and services. Therefore the income concepts underlying both statistics will preferably have to be the same, and it is also very convenient if the income brackets are the same in both kinds of statistics.

GENERAL ASSESSMENT OF INTERNATIONAL STATISTICS AND OUTLOOK FOR THE FUTURE¹

WILLIAM R. LEONARD²

I APPROACH this general appraisal of the comparability of international statistics with a sense that everything I will say has already been said in more compelling ways by those who have already spoken. I will not attempt to summarize the opinions that have been expressed or to present general conclusions that could be drawn from them. Nevertheless, I should like to examine some of the institutional aspects which affect the development of comparable statistics and to review some of the circumstances associated with its achievement.

The attainment of country-to-country comparability of statistics is almost invariably a secondary objective to any particular country, although it is the primary job of the international statistical agencies. There have been very few examples in social and economic fields in which the goal of international comparability was a primary objective of national statistical officers. There have been instances, nevertheless, where such comparability was a primary objective, or at least where national purposes and international purposes were accorded more nearly equal weight by a group of countries. The conferences of British Empire statisticians have given primary consideration to country-to-country comparability; so, also, have the periodic statistical conferences of the Scandinavian statisticians. The Benelux countries are now working in this direction and have initiated programs designed to make some of their statistical series mutually comparable by utilizing identical concepts, definitions, and procedures. Mention should be made also of the efforts being made by European countries in connection with the Marshall Plan.

For the most part, however, statistics are generally collected for strictly national purposes. For the most part, also, the

¹ In preparing this paper I had the benefit of assistance from my colleague P. J. Loftus.

² Acting Director, Statistical Office of the United Nations.

statistics are collected either for a specific administrative purpose or they are simple by-products of normal governmental process. The by-product character of many statistical series may be illustrated by banking statistics which are the inevitable results of the book-keeping process. Foreign-trade statistics had their origin in tax collection and for protectionist purposes, and railway statistics in regulatory processes applied to rates charged for service.

In recent decades, of course, many national statistical series have been initiated independently of administrative needs, narrowly defined, and are not by-products of some governmental process. They have been developed, however, to meet specific national needs. The many subjects covered by a census of population or agriculture in a well-developed country illustrate the variety of matters about which it is thought desirable to have information to facilitate the smooth operation of the economic and social systems. The point is, however, that the statistics are designed to take account of and to reflect the existing structure of economic and social life in a particular country, at a particular time, in consideration of specific or general uses to which the statistics could be put.

Despite many points of similarity between economic and social conditions in one country and those of another, there usually remain significant points of difference which tend to make statistical comparability somewhat more difficult. A great many modern countries, for example, have well-developed systems of social insurance and, in a loose way, it could be said that they are more or less comparable. As far as the by-product statistics of the insurance programs are concerned, however, they may not be comparable in the first instance. Industrial and occupational coverages vary, age limits vary, benefits vary, there are inclusions or exclusions to take account of purely national problems and policies, and in fact an almost infinite variety of small or large differences arises from legal or administrative causes which are almost always fully reflected in the statistics. The result is that, except in the very broadest

sense, statistical comparability is not immediately or automatically attainable. It is important to note, however, that administrative rigidities are not present in many types of statistical collections. The progress achieved in planning the 1950 censuses, especially in Latin America, is a case in point. In such cases a very great opportunity exists for the development of basic comparability.

Even if one disregards the administrative and procedural aspects which are, to a large extent, independent variables, the differences between countries regarding national concepts of needs for statistics are sources of lack of comparability for which there is frequently no easy remedy. At one end of the scale there are countries for which it would now be premature to develop elaborated estimates of national income, important as these estimates are to almost all countries. At the other end of the scale, there are countries which will not collect literacy statistics in the 1950 censuses because illiteracy is so small that it would not be worth while to burden the census schedules with questions upon it.

A country needs statistics first for its own internal purposes; it is only when its internal purposes extend beyond its frontiers that country-to-country comparability of statistics becomes an objective to be sought by the country itself. This is illustrated by the fact that one of the first collections of internationally comparable statistics measured the movement of external trade. In this case it was desirable for individual countries to know as much as possible about sources of goods and markets and know as much as possible about their client and competitor countries. It is interesting to note that even now external trade statistics are available for more countries than any other kind of statistics. This is not to infer that these statistics have reached a desirable degree of comparability; the total value figures possess rough comparability, but the more detailed figures are plagued by a variety of differences which are accounted for by purely national requirements and interests.

It follows that as countries become more and more interdependent politically and economically, incentives will exist for additional areas of comparability to be established. For many years it was enough for most countries to record the flow of merchandise trade in order to adjust their policies in an intelligent way; for the past several years, however, it has been vitally necessary to know also about the flow across national frontiers of capital, tourist expenditures, and other invisible items. This accounts for the very great interest now in comparable statistics of balances of payments.

While there are many indications that institutional forms in different countries are coming closer together, there are also contrary indications which create new difficulties in the preparation of comparable statistics. Governments establish different political and economic objectives and because their statistics must be related to policy matters the statistics are likely not to be comparable. Thus, the role played by the price system in a collectivist society is not the same role as is played by the price system in a capitalistic society; this introduces basic differences in the concepts and magnitudes of economic statistics. Moreover, the industrial structure of a collectivist society is likely to be sufficiently different from that of a capitalistic society that difficulties in comparing statistics are introduced. This point was strikingly shown in the discussions of the standard classification of industries which was recently adopted by the Statistical Commission and by the Economic and Social Council.

Even among countries with roughly the same degree and kind of economic organization, developments during the past few years have made it more difficult to make comparisons among figures of external trade. Trade agreements, currency and exchange controls, and similar governmental policies have resulted in the frequent use of more or less nominal valuations of exports and imports instead of market valuations. Bi-lateral trading arrangements tend to result in unique price relationships for the particular goods under agreement and these re-

lationships may not have any close similarity to the real relationships. In any case, it is now quite hazardous to use formal exchange rate quotations to get from one country's prices to those of another.

Under the conditions outlined, how is comparability to be achieved? One obvious answer is that comparable or identical questionnaires or procedures should be used and to the extent that comparable or identical economic and social organizations prevail this answer is acceptable. But we have seen that economic and social organizations vary considerably. Under these conditions something less than full comparability may be obtained through the use of identical questionnaires and procedures. It is possible, however, in many cases, to seek supplemental statistics which can be used to make comparable figures which are otherwise not comparable or to agree to classification systems that will help to bridge the gap. If for example, one wished to establish comparable figures of the number of persons covered by a defined kind of social insurance program, it would be possible to devise a definition, to analyze the figures of each country determining how they conformed to the definition, and in cases of non-correspondence, to seek supplementary figures which could be used to bring the country's figures into line with the standard definition. Thus it might be necessary to subtract the numbers of domestic servants, or to add the industrial workers engaged in Government enterprises.

It should be noted also that it is not usually necessary for international purposes that all results of statistical series be comparable; it may be enough that the totals or major subdivisions be comparable. In these cases, comparability may not be hard to achieve.

Despite the presence of both old and new impediments to comparability, several developments since the end of World War II have been favourable to the progress of international comparability. The United Nations and the Specialized Agencies have clear and defined responsibilities for promoting the compilation of comparable statistics. These responsibilities are

being exercised with diligence and effect. Increasingly large amounts of reasonably comparable statistics are being collected and published, and an increasing number of methodological and technical publications and standard classifications are being prepared and circulated. The United Nations and the Specialized Agencies are in continuous correspondence with the appropriate offices in almost all countries and a very large number of improvements in comparability have been made in the last two years. Statisticians in every country are becoming more and more conscious of the need for adequate and comparable statistics. Most of the international statistical agencies have many more demands upon them for assistance in statistical matters than they can possibly meet, but it is very encouraging to know of the very real interest being evidenced.

There is a real desire on the part of national governments to provide basic statistics where they do not now exist and to improve national statistics where they are now less than adequate. The real hope for comparable international statistics lies in the establishment and improvement of national systems; if these are established and improved, comparability can be achieved.

In conclusion, therefore, the prospects are encouraging, and the international agencies are generally in a position within realistic limits to expand and improve the work done before the war by such agencies as the League of Nations, the International Institute of Agriculture, the International Labour Office, and the pioneer work done by the International Statistical Institute, the Inter-American Statistical Institute, and other bodies. It will be important to guard against over-optimism about the speed of results because statistics and especially international statistics are evolutionary and depend upon associated conditions. It is the purpose of the international agencies through the ways open to them to minimize the effect of the associated conditions and to produce increasingly large bodies of essentially comparable statistics. I am confident that this can be done.

ANNOTATIONS

PLENTY OF PEOPLE

MANY people have become aware, through popular accounts, of the trend toward smaller families, of the aging of the population, and of our current immigration questions, but quite a number have yet to learn of "The World's Population Pressures, Problems, and Policies, and How They Concern Us"—to quote the subtitle of Warren S. Thompson's revised edition of *PLENTY OF PEOPLE*.¹ The essentials of these matters are presented concisely in this volume for the general reader. To accomplish this useful purpose, in a few instances the author had to forego a certain degree of rigor in the development, as in the discussion of the reproduction rate. The compensation, of course, is that the text is not overburdened with technicalities. Unfortunately, the charts and the tables are not clearly headed in several cases, nor are they always referred to correctly.

The first six chapters provide a background for the points at issue. Here is traced the population growth of the world since 1800, the trends and the factors affecting the course of the birth rate and death rate, the effect of war on population growth, and the future population of nations. The point is made that the rate of population growth of the Western World since 1800 has no parallel in the history of mankind and is a product of reduced mortality resulting from control of environment. However, this period of rapid growth for the West is now over. While its peoples are entering a period of stationary, if not declining, numbers, the rest of the world, already subject to the pressure of population against subsistence, is headed for continued growth as it follows the steps of the West in reducing

¹ Thompson, Warren S.: *PLENTY OF PEOPLE*. The Ronald Press Company, New York, 1948, Revised Edition, 281 pages, \$3.50.

the death rate faster than the birth rate. Therefore, "assuming also a diminishing differential between West and East in the efficiency of their economic systems, the center of economic strength, and with it the center of political and economic power, is certain to shift in the direction of the more rapidly expanding populations."

Apparently the shift in power does not mean relief from population pressure in the East. According to Thompson, the solution for that problem will have to be birth control. But this calls for changes in mores that can only come over a long period of time. There may be some relief meanwhile by improving underdeveloped areas, and also by a redistribution of population. However, the author makes his proposals in very general terms; concrete planning and action is not yet in evidence. Those who may wonder how the author's proposal to improve underdeveloped areas weighs against the gloomy forebodings of Osborn and Vogt² will find considerable comfort in the discussion on soil productivity by an agronomist, Professor Bradfield.³

The chapter on the political and economic implications of differentials in national growth is followed by two chapters on the distribution of population. The first of these chapters, which deals very largely with the rural to urban movement in the United States, closes with the warning that the concentration of population in large cities, where personal desires and ambitions replace racial and social values, leads to a productivity below the replacement level. The danger of such concentration is not only that it produces an ultimately declining population, but also that it has a high susceptibility to the hazards of warfare. In the second of these chapters, on the distribution of population by migration, the conviction is expressed that emigration from the densely settled areas of Asia will bring its peoples little or no relief from their poverty.

The social and economic effects of changes in the age composition of the population and of a slower rate of growth form

² Osborn, Fairfield: *OUR PLUNDERED PLANET*. Boston, Little, Brown & Co., 1948; and Vogt, William: *ROAD TO SURVIVAL*. New York, William Sloan Associates, Inc., 1948.

³ Bradfield, R.: Soil Productivity and the Potential Food Supply of the United States. *Proceedings of the Academy of Political Science*, 33, January, 1949, p. 39.

the next topics of discussion. The basis for the author's treatment of the difficulties of maintaining an expanding economy in a slowly growing population might be improved. Instead of building his discussion upon a division of national income into a vague "consumers' income, that which is spent currently for living," and "producers' income, that which is available for or used for producers' goods," the approach might have followed current economic thought by being based upon a distribution of national product into consumer expenditures, private capital outlays, and government expenditures for goods and services. The latter, in years to come, will be increasingly affected by expanding services to meet the needs of our aging population.

In a brief chapter on the hereditary fitness of the population, the author points to the growing realization that intelligence tests measure the product of an environment rather than inherited traits. In other words, a weak premise is used by those who argue that the hereditary quality of the population is deteriorating because of the greater fertility of the poorer social-economic classes, who may show to relative disadvantage on these tests. The plea here is for a rise in standards of living and in opportunity for the full development of inborn qualities. The chapter on minorities, which follows, touches only on the situation of the Negro in the United States and on the problems in Europe.

The book closes with two chapters on population policies. After commenting on the population policies of a number of countries, with special attention to that of prewar Germany, it becomes evident that no one policy for the direction of population growth is generally applicable. Thus, with regard to birth stimulants, "It may be better for state aid to take one form in Sweden, let us say direct services to *all* children, but a somewhat different form in France, *e.g.*, larger cash allowances to the family, because of the different structures of the two societies and the different attitudes towards various kinds of aid which prevail in them."

In the final chapter, on a population policy for the United States, the author shows the place our land policy and our immigration policy had in influencing the nation's population

growth. The bases are laid for a population policy for the future. First, it is assumed an attempt will be made to maintain our numbers at a maximum which will be reached in about three decades. A second assumption is that our present democratic system will continue; third, that little can be done to change the hereditary quality of the people; fourth, that it is socially desirable "for practically all people to participate in producing the next generation on as nearly an equal basis as possible"; and last, that enough is known regarding the causes of the decline in the birth rate to permit a policy to be formulated. The author prefers that family assistance for the benefit of children in the United States be in the form of community services rather than cash.

That nebulous concept, the *optimum* population, managed to find its way into the book, even though it had to wait until the last paragraph. The use of the term has, unfortunately, encouraged some estimates of economic *optimum* which, though merely guesses, have been accepted by many as having the stamp of authority. Better than any such guesses are the author's concluding remarks, "... national population policies should take account of the different values which give life its meaning among different peoples. However, the *satisfactory adjustment* of numbers to resources is by no means the only important element in a population policy, although discussions of policy often leave the impression that this is the case."

MORTIMER SPIEGELMAN

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POPULATION ANALYSIS

"I HAVE attempted to summarize what is known about the subject of population and to describe the methods and techniques by which that knowledge has been attained," states Dr. T. Lynn Smith in the opening paragraph of his book, *POPULATION ANALYSIS*.¹ While he admits that "the bulk of the data pertains to the United States" he also states, "... no effort has been spared to assemble comparable information

¹ Smith, T. Lynn: *POPULATION ANALYSIS*. New York, McGraw Hill Book Co., 1948, xiii + 421 pp., \$4.50.

from other portions of the world. . . ." He further says that he is attempting deliberately to avoid a "pathological emphasis" on the subject but rather is instituting an analytical point of view. He discounts any danger of over-population in the United States, stating that "mankind is not at the crossroads from the demographic standpoint. . . ." His preoccupation with analytic materials also leads him to reject the need for introducing the ". . . philosophical and speculative phases of the subject" in a text book specifically directed to undergraduates.

In order to achieve these purposes the volume has been divided into six main sections; five of these are concerned mainly with sources and evaluation of published materials and with methods of analysis and presentation of data on the following subjects: the number and distribution of the population; the composition of the population; the vital processes; migration; and the growth of the population. The sixth section, three pages, is devoted to conclusions. Actually, despite the professed emphasis on methodology much of the book is more descriptive than analytical.

From a technical point of view the book has many good points. For instance, it adequately describes the methods of computing the vital rates. However, the graphic methods of presentation deserve some comments. The principal forms used are maps of the United States with globes or circles superimposed to show certain demographic variations by State. By its very nature the circle is little adapted to this type of presentation, and the globe is less satisfactory. When one considers that a circle increases with the square of its radius and a globe with the cube of its radius the inadequacy of these devices becomes apparent. Even with scales shown, it is difficult to make more than the vaguest estimates of exactly what information is given. In the reviewer's opinion, it is better to use many symbols rather than increase the size of one symbol to give the quantitative information of the type frequently presented in this book. The map showing distribution of the rural nonfarm population by county (p. 34), for instance, affords only the most general inferences. In addition, the student who is not

already aware of the specific attributes of the more populous states in the union would find it quite difficult, if not impossible, to relate the circles on some of the maps to the states to which they refer. On the whole, I found this type of presentation quite unsatisfactory.

In addition, there are a number of curve-line graphs purporting to show continuous relative indices of one sort or another, such as the "relative importance of each age group" in certain segments of the population (p. 106). As in the other case these charts tend to confuse rather than to simplify. Furthermore, much of the information shown in this manner appears to be superfluous if not irrelevant.

The data are so largely restricted to the United States that those given for other countries appear to afford, in most cases, only interesting sidelights. Even for the United States, some of the data are unnecessarily antiquated. The discussion of labor force is based only on statistics from the Sixteenth Census, ignoring the Monthly Report on the Labor Force, which has been published since 1940. The absence of these more recent data makes much of the descriptive material obsolete. In the same way the post war trends of the birth rate appear to have been omitted.

Some statements made in rather axiomatic form seem to be open to question. For example, Chapter 3 opens with the statement, "The modern census uses a classification of the population by race and nativity as a primary subdivision in its tabulations." Except for countries of heavy immigration, censuses that do use the classification, especially nativity, rarely use it as a primary breakdown, and few crossclassifications are in this medium. For other countries, it is hardly "indispensable."

Within many sections one finds suggestions of an anti-urban bias on the part of the author, for example, the implicit argument for rurality as an indicator of the "assimilability of foreign stocks."

The author expresses a desire to use this information in the formulation of policies, yet there is little discussion of population policy past, present, or future.

For a compendium of information contained in the sixteenth census and for a history of the United States census this book should be adequate. It would be a much better book if it had wider coverage, more recent information, and a background of some expressed theoretical framework.

LOUIS A. HARTHEIMER

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SOCIAL MEDICINE: ITS DERIVATIONS AND OBJECTIVES¹

A BASIC concept of the field of social medicine—the importance of consideration of social as well as natural science factors in provision for illness and health—was given definite expression at a conference sponsored by The New York Academy of Medicine in 1947. Discussion centered on the following subjects:

1. Changing concepts of the relation of medicine to society.
2. Social medicine: its differentiation from and relation to clinical and preventive medicine.
3. Epidemiology in social medicine.
4. The place of nutrition in social medicine.
5. Social psychiatry and social medicine.
6. Social applications of psychiatry.
7. Social medicine: the appeal of the common man.

The papers presented are available in the book *SOCIAL MEDICINE: ITS DERIVATIONS AND OBJECTIVES*. Certain highlights of the book are noted in the paragraphs which follow.

Dr. Owsei Temkin gave the first paper on changing concepts of the relation of medicine to society. He indicated that in ancient Greece physicians had few social responsibilities. However, during the Middle Ages they began to assume some responsibility toward the community. In the sixteenth century

¹ *SOCIAL MEDICINE: ITS DERIVATIONS AND OBJECTIVES*. The New York Academy of Medicine Institute on Social Medicine, 1947. Edited by Iago Galdston, M.D. New York, The Commonwealth Fund, 1949, 294 pages.

Also, London, Oxford University Press, Geoffrey Cumberledge.

town physicians who engaged actively in public health work became widespread. The rise of Christianity brought an obligation for physicians to care for the sick.

Dr. George Rosen noted two factors resulting in proposals for government measures to protect health in the late seventeenth and early eighteenth centuries: (1) rising industrialism in which healthy workers were economically productive; and (2) appearance of the paternalistic theory of government of the system of absolute monarchy in Germany. In the last half of the eighteenth century, increasing public interest in the welfare of man was reflected in three developments: (1) proposals for hospital insurance and plans for care of the sick; (2) provision of health facilities for special groups (infants, mothers, industrial workers); and (3) interest in health education.

Richard H. Shryock indicated that middle-class humanitarianism prompted health programs in the 1840's and 1850's. Considerable interest was taken in statistics at this time. For example, Chadwick found a close relation between environment and mortality. In Liverpool the average age of the gentry at death was 35, and of the laborers was 15. Government concern for health followed the collection of such data. Dr. Henry E. Sigerist noted the rising interest in compulsory health insurance in the period from "Bismarck to Beveridge."

Absorbed in scientific problems involved in the care of sick individuals many physicians had limited awareness of the broad social and economic changes. In an introduction to the book, Dr. Howard Reid Craig stressed the present need for realization that medicine is an integral and interrelated part of the social organism. The need is recognized in the field of social medicine, which he defined as the product of the "anabolism of the biological, psychological, and social sciences." Persons trained in these three fields contributed to the discussion of epidemiology, nutrition, and psychiatry.

In the papers on epidemiology, two types of studies in which attention should be given to social factors in illness and health were mentioned. Dr. Ernest L. Stebbins noted the increasing concern for social factors following the rise of studies of non-infectious disease. Margaret Merrell and Lowell J. Reed pro-

posed epidemiological studies emphasizing health in which consideration is given to the nature of the environment.

Dr. Hugh R. Leavell followed with suggestions for a broad program of social medicine including:

1. Extension of basic public health services, with greater attention to social conditions affecting tuberculosis, venereal disease, and industrial illness.
2. Additional concern for geriatrics, mental health, nutrition, and housing in public health programs.
3. Provision of facilities for early diagnosis and adequate care of illness.
4. Education in social and economic factors in sickness.

Dr. Dean A. Clark pointed out that individuals must assume responsibility in the programs of social medicine.

The broad economic and political considerations ultimately involved in provision for health were particularly evident in the discussion of nutrition. Dr. Frank G. Boudreau stated that a World Food Survey by the Food and Agriculture Organization of the United Nations showed that before World War II, food supplies at the retail level were adequate for provision of less than 2,250 calories per person daily. These supplies were unevenly distributed. John D. Black noted that index numbers for the diets of 70 countries reported in the 1935-1939 World Food Survey ranged from 113 for New Zealand to 33 for India and Java.

Numerous means of securing improved nutrition were suggested:

1. Proper care of the soil, concern for climatic factors affecting food, production of kinds of food needed by the people, and use of processing methods involving least loss of food value to solve problems of food supply.
2. Supplementary food distribution programs, such as school lunches, in-plant feeding, and food stamp plans, to assure food to certain groups.
3. Food enrichment and guaranteed nutritional quality of food through legislation to meet difficulties the consumer faces in wise choice of foods.

In a broad introduction to the discussion of psychiatry, F. S.

C. Northrop noted the influence of philosophic ideologies on the social practices of particular cultures. He suggested a world philosophy reconciling the diverse ideologies of various areas as a means to international peace and to adequate self-expression by persons of diverse potentialities and values. Along this line, Dr. Iago Galdston stated that "modern dynamic psychiatry traces much of the prevailing psychopathy to the conflict between the primitive drives and singular goals of the individual and the restrictions and exactions imposed upon him by the group in which he dwells."

Specific consideration was then given to problems of adjustment in various life situations. Mary Fisher Langmuir stressed the influence of infancy and early childhood on later mental health. She noted the importance of competent parents who recognize the changing needs during the early years of life, such as the desirability of early mothering followed by later independence. In a paper on adolescence, Dr. Phyllis Greenacre suggested "social awareness of the needs of adolescence—its susceptibility to new ideals and particularly its need for social group activities." In a discussion of the family, Dr. William Line noted the relationships between family and community adjustments of individuals.

The purpose of this book, as stated by Dr. George Baehr, was "not so much to reveal new knowledge as to take a first step toward the correlation of available information." This purpose was realized.

ELIZABETH H. JACKSON

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AGE AND WASTAGE IN INDUSTRIAL POPULATIONS¹

IN order to study the relation between age and the incidence of specific disease, Padley made use of data on illness for the insured working population of Scotland during the period 1931–1936 and for various insured working groups at particular periods during the past century.

¹ Padley, Richard: Studies on Age and Wastage in Industrial Populations. *British Journal of Social Medicine*, October, 1947, 1, No. 4, pp. 213–237.

In the absence of precise knowledge of illness in the population at risk, Padley measured the frequency of illness by counting cases which received a health insurance benefit. He has expressed illness by cause as proportional morbidity.

The data which Padley presented on previous insured populations were unique in that they afforded sickness experience at intervals during a period of 100 years. The sources included: East India Company laborers for the years 1823-1833; Registered Friendly Societies, 1876-1880; Manchester Unity of Oddfellows, 1893-1897; Leipzig Local Sick Fund, 1887-1905 (compulsory members); National Health Insurance, 1921-1923; and Scottish National Health Insurance, 1930-1931, 1936-1937. Padley found that "When due regard is paid to the necessary crudity of the earlier data, and to inaccuracies due to lumping age groups together in the interests of comparability, it is remarkable how uniform these overall relative incidences are" (for specific age groups). "It is at least apparent that, irrespective of the level of incidence, the relative liability to sickness in the working age range is greatest at under twenty and over sixty and at a minimum probably about the age of thirty."

The Scottish National Health Insurance (1931-1936) data included disabling illnesses reported by the insurance doctor and described by him as to diagnosis, dates of onset and termination, and outcome of the illness. In addition, the record included age, sex, occupation, and (for women only) marital status of the sick person.

From analysis of these data it was evident that the contributions of certain diseases to the total morbidity differed with age. For example, appendicitis contributed 2.3 per cent of the total illnesses for males at ages 20-24 and only 0.4 per cent at ages 55-59. Tonsillitis and skin conditions also affected the younger ages more than the older ages. In comparison, certain illnesses showed a rise in contribution to total illness with increasing age. Myocarditis rose from 0.1 per cent of all illness among persons under 20 to 2.1 per cent for persons 60 years of age and over. The proportion of total illness represented by bronchitis rose from 4.9 per cent for persons under

20 years of age to 11.7 per cent for persons 60 years and over. Influenza maintained a fairly constant rate of incidence throughout all age groups.

It was found that men and women differed in their liability to accidents or injury. According to Padley, "while injury is far more important as an overall source of wastage among men, its contribution falls slightly with age; with women, however, it increases steadily." An examination of the frequency of accidents by type at specific ages among women showed that for only one type, fractures, was there a striking change with age. After age 45 the relative incidence of fractures increased from 11 per cent to 23.7 per cent at 60 years and over. No such increase was evident among males. Padley suggested that the explanation may be "increased relative liability to fracture among women over the age of 45 . . . may be local, and lie in increased risk among the older women due to selection of the types of occupation in which they find themselves, or it may be a generalized physiological sex difference."

Padley studied certain specific diseases in order to determine the relation of their incidence to age. Infectious diseases made up the bulk of illnesses which showed a decreasing incidence as age increased. Diseases of the cardiovascular system contributed largely to those which increased at the older ages.

This study is of interest because it has made available a large body of data on illness. The information which it disclosed concerning the relation of incidence of specific illnesses to age has important implications. As Padley said, "In a society the age structure of whose population is shifting, such data must form the basis for budgeting specialist clinic services in a system of state medicine. In conjunction with similar figures showing time lost—temporarily or otherwise—from work, data of this sort also give a clear indication of priorities in research and preventive medicine aimed at diminishing man-power wastage."

DORIS J. CLARK



BOOKS

In Collaboration with the Milbank Memorial Fund

BACKGROUND OF SOCIAL MEDICINE. Proceedings of the 1949 Annual Conference of the Milbank Memorial Fund, 1949. 204 pages. \$1.00.

CONTRACEPTION AND FERTILITY IN THE UNITED STATES. LA PLANTE, E. Gilbert Wheeler Books, Ph.D. Professor, The Williams and Wilkins Company, 1943. 290 pages. \$1.50.

DEMOGRAPHIC STUDIES OF SELECTED AREAS OF RACE GROWTH. Proceedings of the Round Table on Population Problems, the 1945 Annual Conference of the Milbank Memorial Fund, April 1945. New York, Milbank Memorial Fund, 1945. 168 pages, paper binding. \$0.75.

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SOCIAL AND PSYCHOLOGICAL FACTORS AFFECTING FERTILITY. Volume 2. New York, Milbank Memorial Fund, 1946. 100 pages.

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